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COMPATIBILITY OF EXPLOSIVES WITH POLYMERS

by

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SUMMARY

This report is a compilation of data published between 1950 and 1957 on the compatibility of polymeric materials with explosives and propellants. Its contents, which supplement those of Picatinny Arsenal Technical Report 1838 by O. R. Abolafia, are arranged to facilitate the addition of new material based on the chemical composition and structure of the polymers, and also to make easier the comparison of the polymers in terms of their behavior in contact with particular explosives and propellants. The goal of this work is to provide an authoritative and up-to-date handbook which will be useful to design engineers and chemists in selecting polymeric materials for applications involving prolonged contact with explosives and propellants.

A section is included for each of the following classes of polymers: acrylates, cellulosics, epoxies, ethylenes and fluorocarbons, furanes, polyamides (nylons), phenolics, polyesters, silicones, styrene polymers and copolymers, synthetic rubbers and rubber derivatives, vinyl polymers and copolymers, and miscellaneous resins.

Each section contains a brief description and evaluation, followed by relevant tables and figures. For propellants and explosives, results of vacuum-stability tests and 100°C heat tests are given. The effects of contact on the polymers are reported chiefly in terms of the results of physical and mechanical properties tests.

DISCUSSION

1. Ordnance personnel frequently have the problem of using polymers in contact with explosives. Usually, design or other criteria limit the selection of the polymer, quite aside from the compatibility aspect. If neither the explosive or polymer adversely affects the other, the compatibility aspect presents no problem. Occasionally, however, a polymer does seriously and adversely affect an explosive. Such a finding is usually considered sufficient justification for rejecting the polymer for use in direct contact with the explosive.

2. At this point, it may be well to explain what is meant by the word "compatibility" as it is used in this report.[1] When a polymer[2] is in direct contact with an explosive[3] the polymer may under certain conditions affect one or more of the properties of the explosive. Conversely, an explosive may affect the properties of a polymer. If neither the explosive nor the polymer is adversely affected by direct contact, then the explosive-polymer combination is considered compatible.

[1]Compatibility as defined by the polymer industry has to do with the mutual solubility or the mutual coexistence of materials as evidenced by the clarity, stability, and homogeneity of solutions without phase separation.

[2]The term polymer, as used in this report, refers to plastics, elastomers, rubbers, adhesives, coatings, potting or encapsulating resins, and all compositions containing a polymeric component of significant proportions.

[3]The term explosive includes propellants, pyrotechnics, fuze powders, black powder, and all other non-inert components of ammunition items.

3. The vacuum-stability test, the heat test, the impact-sensitivity test, and the Taliani test are the most common means of determining the effect of a polymer on an explosive.

4. The vacuum-stability test, which is more frequently used than any other, is an accelerated test designed to determine whether or not contact with a polymer increases the reactivity of an explosive. Details regarding vacuum-stability and other tests are given in the description of tests methods. In the usual vacuum-stability test, a net increase of 5 milliliters in the amount of gas given off by the explosive is considered evidence of excessive reactivity. The increase is attributed to undesirable interactions between the explosive and the polymer or undesirable reactions induced by the polymer. Ideally, the validity of the 5-ml criterion should be established for each polymer-explosive combination. This has already been done for many polymer-explosive combinations, and the results have been reported (See PATR 1636, 9 December 1946).

5. When the vacuum-stability test is used, a variation in the ratio of the surface area to the volume of the polymer/explosive mixture, a change in the ratio of explosive to polymer, or the presence in the polymer of small amounts of unreacted catalyst can produce confusing and seemingly conflicting results.

6. The heat test is conducted to quickly obtain data indicating deterioration. The heat test is used instead of the vacuum-stability test when the effect of polymers on the stability of highly sensitive explosives is to be determined. A reported 5% loss in weight during two 48-hour periods or an explosion within 100 hours is considered indicative of excessive deterioration, and the materials are deemed incompatible.

7. When it has been determined that the polymer does not affect the explosive, one or more tests to determine the effect of the explosive on the polymer may be run. In these tests, specimens of the polymer are usually immersed in the explosive and stored at elevated temperatures. The properties of test specimens are determined as a function of time in the explosive and compared with the properties of control specimens stored apart from the explosive. Time periods of from several weeks to several months are usually required. The effects most often measured are: visual changes and changes in weight, hardness, tensile strength, and elongation. End-item requirements determine which properties are of greatest importance in each Ordnance application. Accordingly, the significance of all changes in the properties of the polymer must be interpreted in terms of the particular application under consideration.

8. Fortunately, many end-item applications do not require contact between the polymer and the explosive. For such applications, these tests are usually neither required nor relevant except for the possibility of accidental contact.

9. It should be emphasized that this report was prepared by compiling available data. This data was obtained over a period of several years by numerous investigators in connection with many specific requests for detailed information regarding the compatibility of polymer-explosive combinations. The author is aware that, in some instances, isolated portions of the data appear to be in disagreement with the conclusions. Nevertheless, the author strongly feels that her conclusions are correct and proper, and should prove of considerable benefit to technical personnel who do not have a detailed familiarity with this specialized field.

TEST METHODS

Vacuum-Stability Test

10. Stability tests generally measure the resistance of explosives to decomposition by heat. The vacuum-stability test measures the loss in weight or the volume of gas liberated after a standardized heating period has elapsed.[1] A 5 ±0.05-gram portion of the explosive is thoroughly mixed with a 0.5 ± 0.05-gram portion of the polymer, and the mixture is subjected to the vacuum-stability test according to standard conditions and procedures.[2] A temperature of 100°C is used for all tests with high explosives.

Heat Test

11. A 0.6-gram sample of explosive and a 0.6-gram sample of polymer are heated for two 48-hour periods at 100°C, both alone and in a mixture. It is noted whether the occurrence of an explosion during 100 hours of such heating is recorded.[3]

Impact-Sensitivity Test

12. A small sample of explosive is subjected to the action of a falling weight, usually 2 kg, and the minimum height at which at least one out of ten trials results in a detonation or in some other evidence of explosive decomposition[4] is taken as the test value.

DEFINITIONS OF TERMS

13. The following special terms are used in this report:

Tensile Strength

The maximum tensile load per unit area of original cross-section, within the gage boundaries, required to break a test specimen. (The maximum tensile load is the greatest tensile load sustained by the specimen during the test. It may or may not coincide with the tensile load at the moment of rupture.) It is expressed in pounds per square inch.[5]

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[1] S. Axelrod, *Effects Produced Upon Explosives by Contact with Plastics, Report No. 1*, Picatinny Arsenal Technical Report 1636, 9 December 1946

[2] W. H. Rinkenbach and A. J. Clear, *Standard Laboratory Procedures for Sensitivity, Brisance, and Stability of Explosives*, Picatinny Arsenal Technical Report 1401, 18 March 1944, pp 9-10

[3] O. Sheffield, *Properties of Explosives of Military Interest*, Picatinny Arsenal Technical Report 1740, Revision 1, April 1958.

[4] L. C. Smith and E. A. Eyster, *Physical Testing of Explosives, Part III, Miscellaneous Sensitivity Tests, Performance Tests*, OSRD Report No. 5746, 27 December 1945

[5] ASTM Standards, Part 6, 1955 p. 217

Tensile Stress (True)

The tensile load per unit of minimum cross-sectional area within the gage boundaries carried by the test specimen at any given moment. It is expressed in pounds per square inch.

Strain

The ratio of the extension to the original length of the measured elongation section of the test specimen, that is, the change in length per unit original length. It is expressed as a dimensionless ratio.

Percentage Elongation

The increase in length expressed as a percentage of the original gage length.

Proportional Limit

The greatest stress which a material is capable of developing without a deviation from the law of proportionality of stress to strain (Hooke's Law).

Yield Point

The stress level at which a marked increase in strain occurs without a corresponding increase in stress.

Elastic Modulus

The ratio, within the elastic limit of a material, of stress to corresponding strain.

CONCLUSIONS

14. The degree to which a polymer affects the stability of an explosive varies with the exact composition of the explosive and the polymer. In general, a polymer that has an adverse effect on one explosive is likely to have an adverse effect on others.

15. The effect of an explosive on a polymer is usually qualitatively predictable if the composition and structure of the polymer and the chemistry of the explosive are known. A principal cause of the mechanical deterioration of polymers is the migration of nitroglycerine from double- or triple-base propellants into the polymeric material, which lowers its strength and its modulus. In general, polymers that are degraded by overplasticization caused by nitroglycerine migration begin to show signs of deterioration between the second and fourth weeks of storage.

16. Important general conclusions are given below. More detailed conclusions are contained in the discussions of the various types of polymer.

a. Most explosive-polymer combinations are compatible. Important general exceptions are described in the following paragraphs.

b. Most of the amorphous thermoplastics (unmodified polystyrene is an exception) lose strength and deteriorate when placed in contact with propellants containing nitroglycerine. The rate of

deterioration is dependent on the propellant, the polymer, and the test conditions. Highly crosslinked, or thermoset, and crystalline polymers are resistant to deterioration by propellants containing nitroglycerine.

c. Epoxies cured with aliphatic amines cause excessive reactivity of most explosives. Epoxies cured with polyamides cause excessive reactivity of a few explosives. Such polyamides by themselves also cause excessive reactivity of some explosives.

d. Polysulfide (Thiokol) polymers increase the reactivity of some explosives and propellants. Polysulfides should definitely not be used in direct contact with PETN, Pentolite, Composition B, Amatol, or Tetrytol.

e. Rubber-modified phenolics cause greater reactivity of explosives than other phenolic compositions but such reactivity is not necessarily excessive.

f. Many explosives cause vulcanization of unsaturated rubbers. The amount of vulcanization increases with the unsaturation of the rubber polymer.

ACKNOWLEDGMENTS

17. The author wishes to acknowledge the valuable assistance rendered by Mr. William Tanner, who provided much helpful advice, and by Mrs. C. Rugger and Mr. E. Duda, who performed much of the experimental work reported herein.

TABLE 1

Composition of Propellants[a]
(percent by weight)

M-1

Nitrocellulose (13.15% N)	85.00%
Dinitrotoluene	10.00
Dibutyl phthalate	5.00
Ash	0.40

M-7

Nitrocellulose (13.15% N)	54.60%
Nitroglycerine	35.50
Ethyl centralite	0.90
Potassium perchlorate	7.80
Carbon black (dry)	1.20
Total volatiles	0.80% dry

M-2

Nitrocellulose (13.15% N)	77.45%
Nitroglycerine	19.5
Ethyl centralite	0.6
Graphite	0.3
Potassium nitrate	0.75
Barium nitrate	1.4
Moisture	0.7
Ash	0.4

M-8

Nitrocellulose (13.25% N)	52.15%
Nitroglycerine	42.27
Diethyl phthalate	3.04
Potassium nitrate	1.09
Diphenylamine	0.67
Methyl cellulose	0.16
Moisture	0.09

M-6

Nitrocellulose	87.0 %
Dinitrotoluene	10.0
Dibutyl phthalate	3.0
Diphenylamine	1.0
Moisture	0.6
Ash	0.4

M-9

Nitrocellulose (13.25% N)	57.75%
Nitroglycerine	40.00
Potassium nitrate	1.5
Ethyl centralite	0.75

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[a]Single-Base	Double-Base		Triple-Base	Composite
M-1	M-2	M-17	M-15	T-13
M-6	M-7	M-18	T-7	T-17
M-10	M-8	T-2		T-21 (Now M-20)
M-12	M-9	T-6		T 22
M-14	M-16	T-8		
	T-16	MRP		
	T-18	OGK		
	T-19	OIO		
	T-28			
	JPN			

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Section 1

ACRYLATES

(Thermoplastic resins including polymethyl methacrylate)

A survey of available data on the compatibility of acrylate-type polymers with explosives and propellants indicates that:

1. Acrylates do not affect the reactivity of explosives and propellants.

2. Explosives have no apparent affect upon the physical appearance of acrylates.

3. The behavior of acrylates in direct contact with double- and triple-base propellants is not altogether satisfactory. Contact with double-base propellants containing 20% and more nitroglycerine results in excessive nitroglycerine absorption with consequent plasticization of the plastic. Other plasticizers and vehicles for propellants, such as triacetin and dibutyl phthalate, may also be absorbed by the acrylate.

4. The M-9 propellant, when used in the vacuum-stability test with Acryloid B-72(Table 2, p 10), liberates 7.72 ml of gas by itself and is therefore considered to be excessively reactive. Under these conditions, interpreting a net evolution of 5.06 ml as excessive may not be valid.

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TABLE 2

Vacuum Stability Test Results for Acrylates

Polymer	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due To Polymer	Remarks[a]	Picatinny Report No.
Acrylic MF-875	Amatol	100	0.50	0.41	0.94	0.03	Negligible	56-M2-12
	Black powder	100	0.23	1.24	0.46	0.00	None	56-M2-12
	M-7	90	0.47	2.13	1.92	0.00	None	56-M2-12
	M-15	90	0.47	1.98	2.00	0.00	None	56-M2-12
	Tetryl	100	0.50	0.45	0.68	0.00	None	56-M2-12
Acryloid B-72	Black powder	100	0.28	0.44	1.10	0.38	Negligible	56-M2-5
	Composition B	100	0.37	0.46	0.31	0.00	None	52-M2-145
	M-9	90	0.92	7.72	13.70	5.06	Excessive	53-M2-19
	Squib mix	100	1.85	6.90	8.30	0.00	None	51-8-4
	Tetryl	100	0.37	0.51	0.81	0.00	None	52-M2-145
	Bullseye No. 2 Flash Powder	90	0.31	1.94	1.84	0.00	None	52-H1-2023
Lucite HM-130	Haleite	—	—	—	—	1.20	Very slight	53-H1-2575
	PETN	—	—	—	—	0.38	Negligible	53-H1-2575
	RDX	—	—	—	—	0.31	Negligible	53-H1-2575
	T-9	—	—	—	—	2.22	Slight	53-H1-2575
Plexiglas	Composition C-4	100	0.97	0.26	0.44	0.00	None	51-8-35
Eastman No. 910	PBX-	100	0.46	0.33	0.48	0.00	None	57-H1-29

[a] None = net increase in gas evolution of 0

Negligible = net increase in gas evolution of 0.01 – 1.00

Very slight = net increase in gas evolution of 1.01 – 2.00

Slight = net increase in gas evolution of 2.01 – 3.00

Moderate = net increase in gas evolution of 3.01 – 4.99

Excessive = net increase in gas evolution of 5.00 and above

TABLE 3

Effects of Storage on Physical Properties of Acrylates

Polymer	Explosive or Propellant	Storage, Weeks	Temperature, °C	Effects on Polymer	Picatinny Report No.
Acryloid B-72	Composition B	32	76	No effect	52-M2-145
	M-9	2	50	Softens, loses adhesion, becomes tacky	53-M2-19
	Squib mix	6	50	Becomes brittle and loses adhesion	51-8-4
	Tetryl	32	76	Color fades	52-M2-145

TABLE 4

Properties of Plexiglas II Cast Sheets After 12 Months Storage With Various Propellants

Propellant	Change in Weight	Maximum Tensile psi	σ±	Proportional Limits psi	σ±	% Elongation at Yield	σ±	% Elongation at Break	σ±	Modulus of Elasticity psi	σ±	Work at Yield, ft lbs	σ±	Work to Produce Failure, ft lbs	σ±	Impact Strength ft lbs/in. of notch	*σ±
Original Control		9.[illegible]	1462	4470	317	3.7	1.9	3.7	1.9	476×10^3		22.1	16.5				
Room Temperature Control	−0.0	6.9[illegible]	482	5190	1050	1.7	0.2	1.7	0.2	440×10^3	11,220	5.42	1.0	5.42	1.0	0.36	0.1
50°C Control	−0.5	6,650	865	4860	479	1.6	0.2	1.6	0.2	462×10^3	20,179	4.68	1.2	4.68	1.2	0.35	0.1
OGK	+24.6	7,830	505	2000	—	4.1	0.5	139.0	19.0	301×10^3		25.5	3.4	704	141.0	0.35	0.1
OIO	+34.7	5,910	353	2970	—	5.8	0.6	126.9	36.0	229×10^3		25.7	5.0	493	137.0	0.41	0.1
M 2*	+1.7	[illegible],300	482	6510	721	4.1	0.8	4.1	0.87	482×10^3	41,621	26.1	6.8	26.1	6.8	0.31	0.1
M 7	+62.6	[illegible]	687	1690	—	3.8	1.2	117.0	23.9	146×10^3	—	14.0	1.7	349	71.0	0.38	0.1
M 8	Specimen deteriorated beyond testing in 6 months gaining 96.5% in weight																
M 9	+58.6	4,150	296	2150	—	3.9	0.8	105.0	22.0	149×10^3	—	12.1	1.8	294	72.0	0.34	0.2
M 15*	+53.3	5,320	145	2170	—	4.6	0.5	126.0	32.0	196×10^3	—	16.6	0.5	442	125.0	0.41	0.1
T 6	+45.0	5,860	710	2340	—	5.7	1.9	126.3	39.0	205×10^3	—	25.6	8.4	475	137.0	0.41	0.2
T 8	Specimen deteriorated beyond testing in 2 months (See Fig 5, p 17)																
T 16	+37.4	4,380	185	2100	—	4.3	1.2	139.0	16.0	224×10^3	—	17.0	1.8	462	104.0	0.42	0.1
T 18*	+3.2	10,600	531	5120	—	5.2	1.4	145.0	12.0	428×10^3	—	45.3	3.4	936	85.0	0.36	0.1
T 19	+46.0	7,090	438	1620	—	4.8	1.7	129.0	75.0	148×10^3	—	33.9	4.1	322	170.0	0.35	0.2

*Contains <20% nitroglycerine

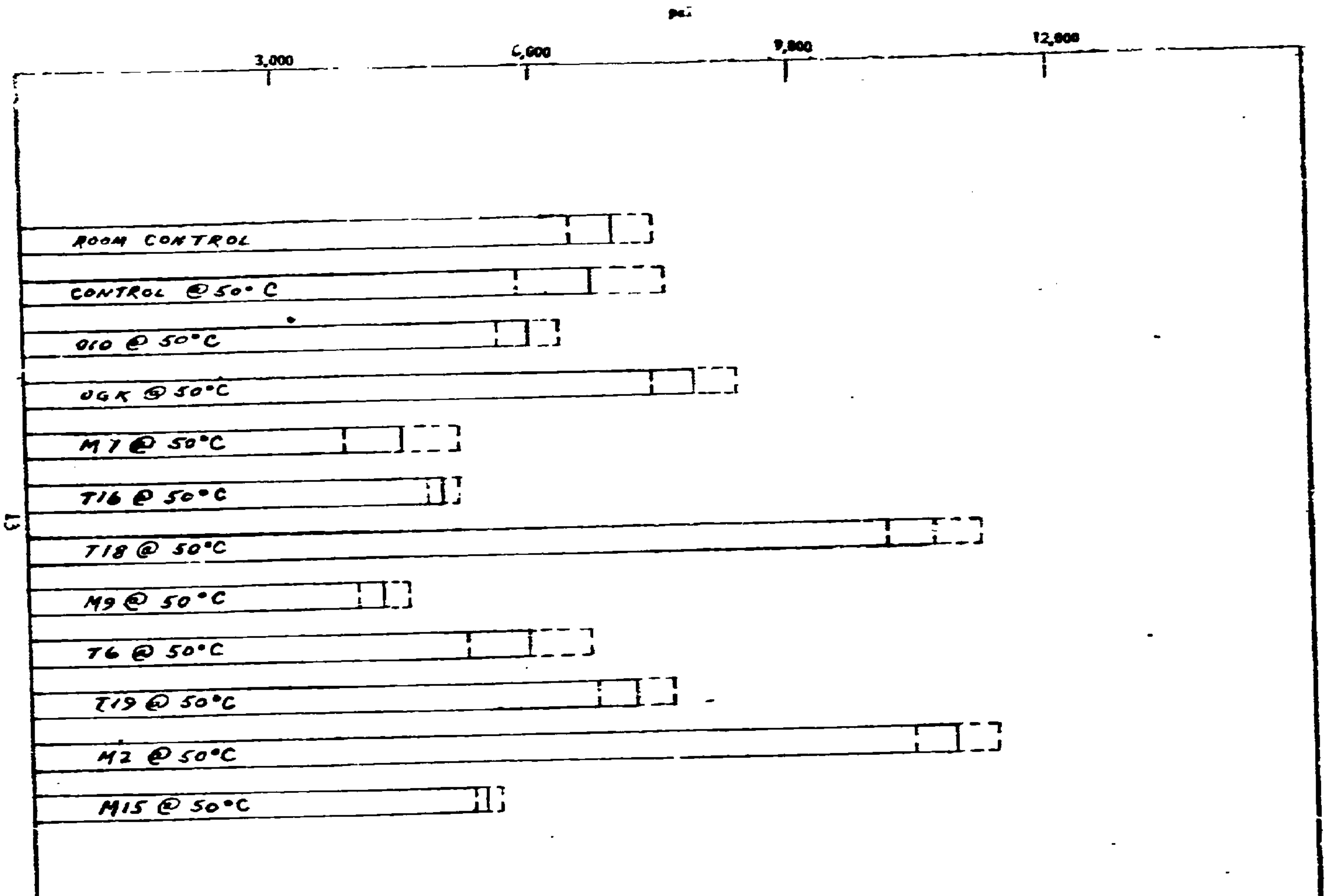

Fig 1 Maximum Tensile Strength of Plexiglas II After 12 Months Storage With Various Propellants (Range of standard deviation is indicated by broken lines)

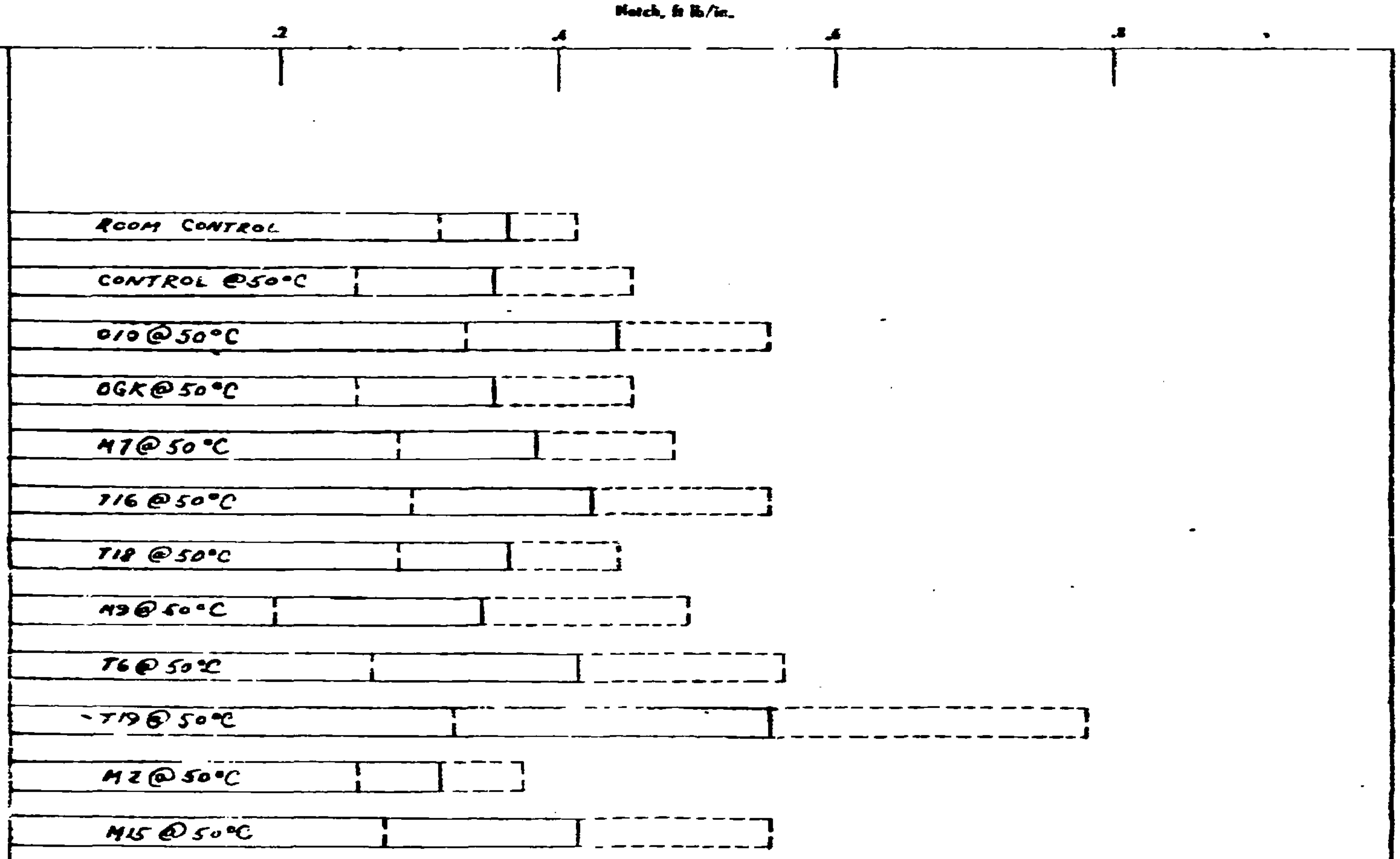

Fig 2 Impact Strength of Plexiglas II After 12 Months Storage With Various Propellants

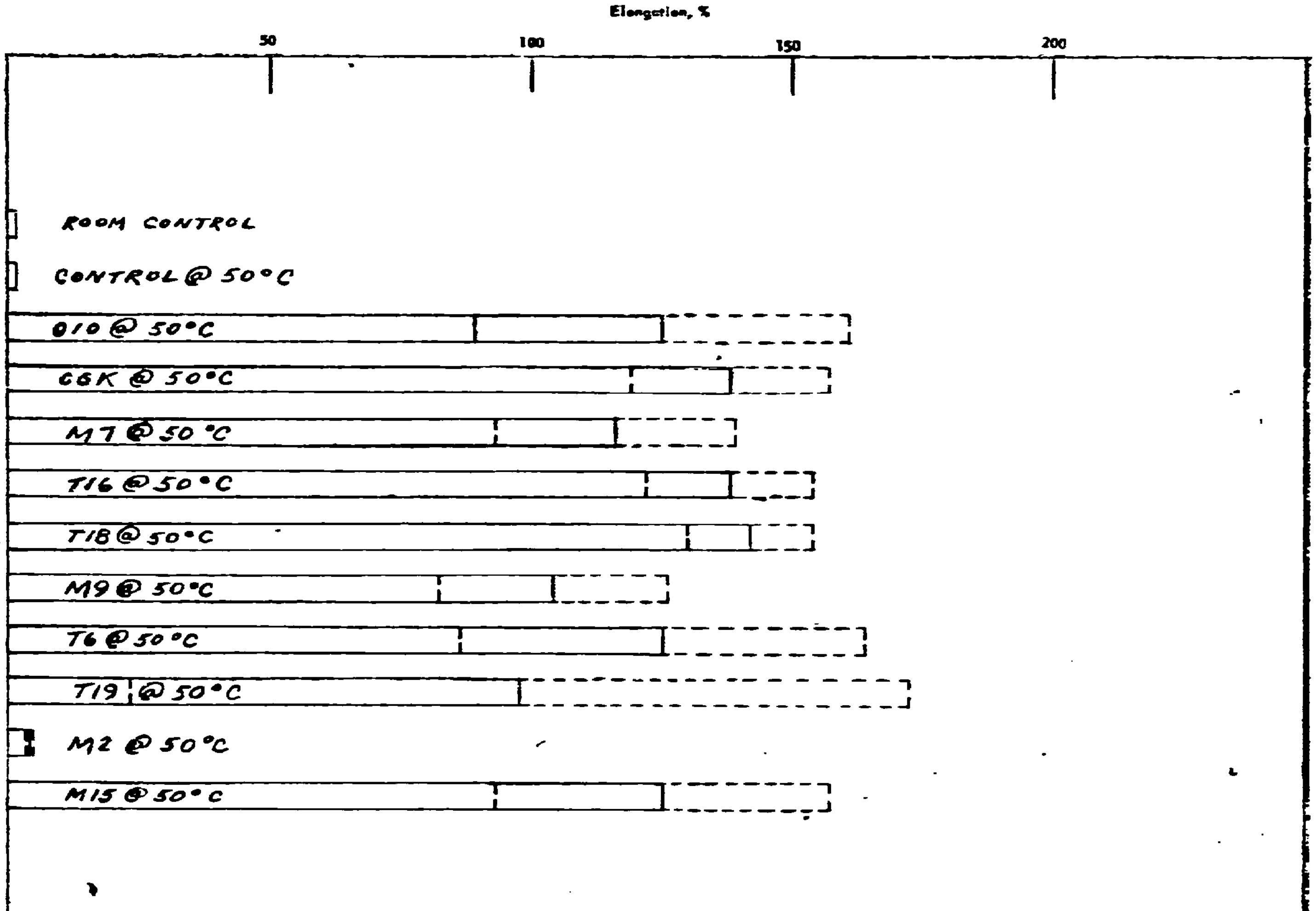

Fig 3 Percent Elongation at Break of Plexiglas II After 12 Months Storage With Various Propellants

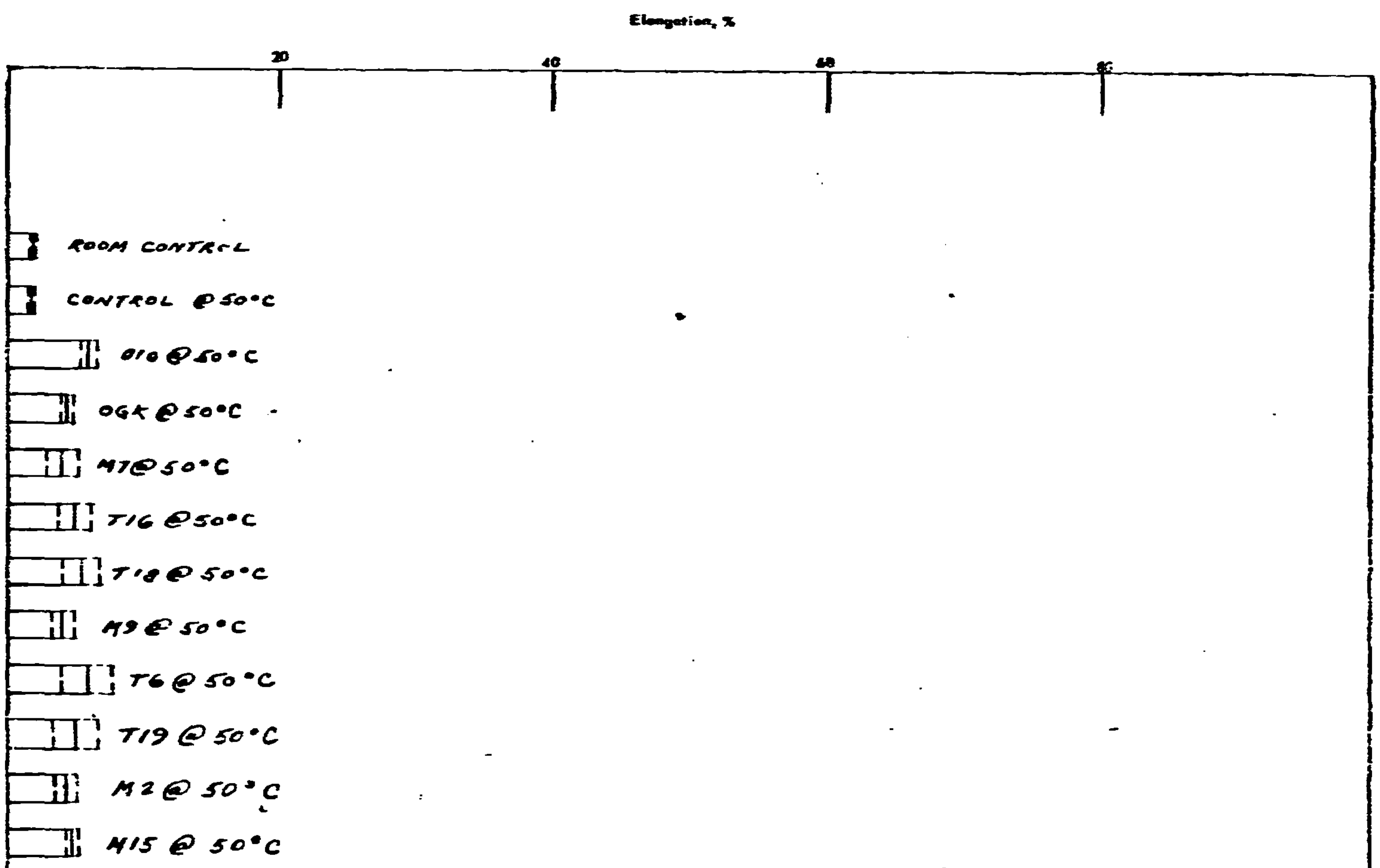

Fig 4 Percent Elongation at Yield of Plexiglas II After 12 Months Storage With Various Propellants

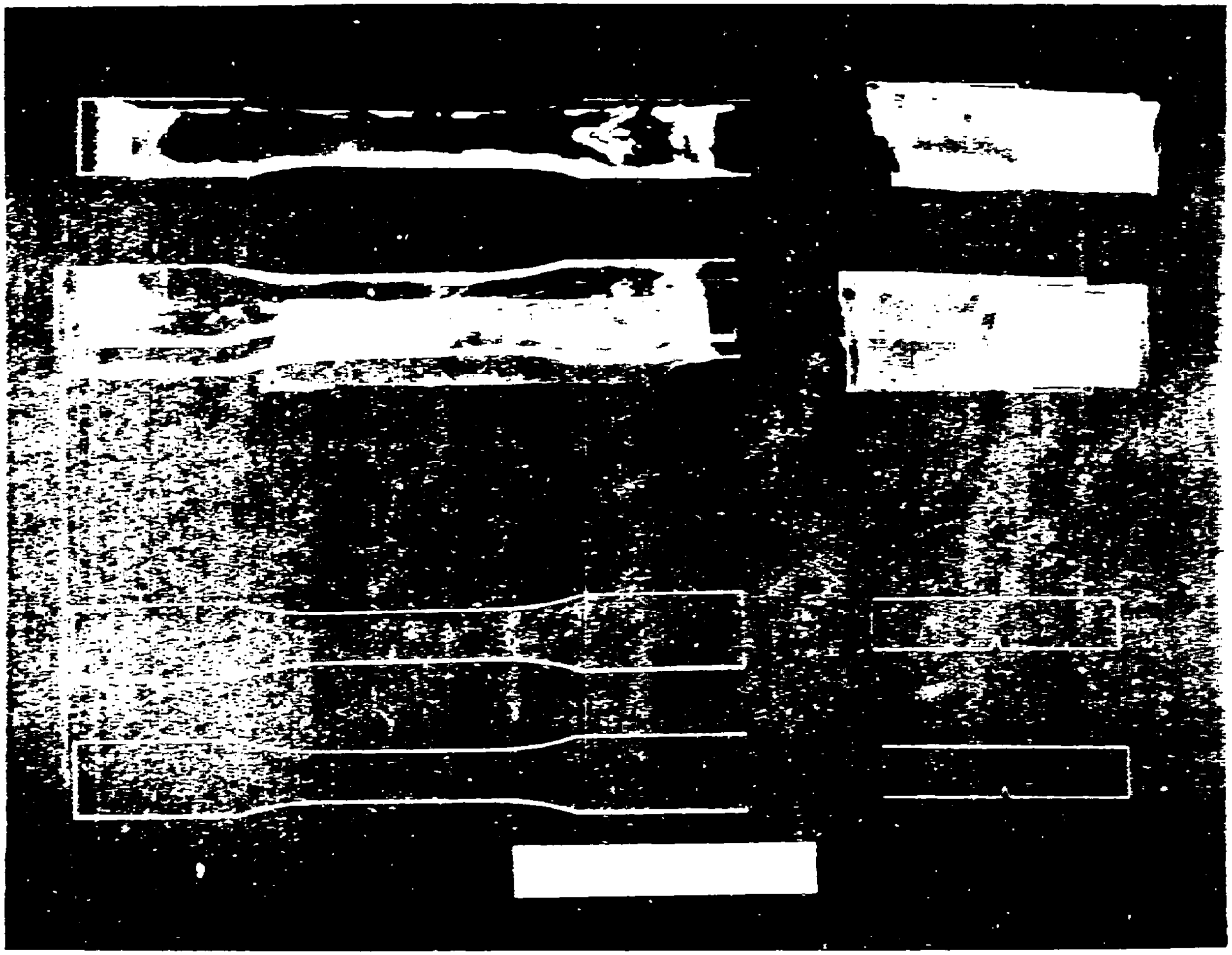

Fig 5 Plexiglas II After Two Months of Contact With T-8

Section 2

CELLULOSICS

Included under the general heading of cellulosics are the cellulose nitrates, cellulose acetates, cellulose acetate butyrates, cellulose propionates, ethyl celluloses, carboxymethyl celluloses, hydroxyethyl celluloses, and regenerated cellulose.

A review of Tables 5 through 24 (pp 19 through 58) indicates that:

1. Cellulosics in general do not affect the reactivity of explosives and propellants.

2. Cellulose polymers in general are extensively weakened by prolonged contact with propellants containing nitroglycerine. Some propellants such as M-2 affect the cellulosics much less than others. Variations in the plastics affect the rate and degree of attack by the propellants.

Tables 25 through 27 (pp 59 through 60) contain information on the compositions of the cellulose acetate, ethyl cellulose, and cellulose acetate butyrate materials tested. Table 1 (p 6) gives compositions of the propellants used.

TABLE 5

Vacuum Stability Test Results for Cellulosics

Polymer	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
CMC No. 346	JPN	90	0.11	2.36	2.41	0.00	None	53–M2–4
	MRP	90	0.11	1.71	1.59	0.00	None	53–M2–4
	T–2	90	0.11	7.22	5.10	0.00	None	53–M2–4
	T–8	90	0.11	2.04	2.89	0.74	Negligible	53–M2–4
Cellophane No. 300PC	Black powder	100	0.19	0.49	0.87	0.19	Negligible	53–M2–72
Cellophane (Mil–50–11–151)	M–8	90	0.31	2.81	2.71	0.00	None	53–M2–85
Cellophane (M–Sat–84)	M–8	90	0.26	2.40	3.60	0.94	Negligible	54–M2–49
Cellulose acetate	Black powder	100	0.12	0.45	0.37	0.00	None	52–H1–4188
Cellulose acetate S–704	T–31	90	0.05	2.76	2.42	0.00	None	56–M2–46
Cellulose acetate DEP	T–31	90	0.01	2.76	1.73	0.00	None	56–M2–46
Cellulose acetate A–5 sta.	T–31	90	0.01	2.76	2.42	0.00	None	56–M2–46
Cellulose acetate/ Dibutylphthalate	Haleite	—	—	—	—	1.24	Very slight	53–H1–2757
	M–1	—	—	—	—	0.18	Negligible	"
	M–2	—	—	—	—	5.98	Excessive	"
	PETN	—	—	—	—	0.44	Negligible	"
	RDX	—	—	—	—	0.22	Negligible	"
	T–9	—	—	—	—	1.53	Very slight	"
Cellulose nitrate lacquer	T–28	90	0.40	5.29	4.26	0.00	None	56–M2–79

TABLE 5 (Cont)

Polymer	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Cellulose nitrate (film)	Black powder	100	2.09	0.36	0.94	0.00	None	52–M2–6
	M–1	90	0.64	0.53	0.43	0.00	None	52–M2–6
	M–9	–	–	–	–	0.00	None	51–H1–136287
	M–10	100	0.36	6.99	11.00	3.75	Slight	54–H1–2110
	T–18	90	0.25	3.03	3.50	0.22	Negligible	54–H1–2110
Diacetate cloth (Bale No. 25)	Black powder	100	1.53	–1.10	0.43	0.00	None	57–H1–327
	M–1	100	1.69	–0.96	0.73	0.00	None	57–H1–321
	M–2	100	8.75	–4.08	4.67	0.00	None	57–H1–321
	M–15	100	6.47	–4.38	2.09	0.00	None	57–H1–321
Dobeckman (M–Sat. clear)	M–8	90	0.24	2.88	2.68	0.00	None	53–M2–134
Dextrin	T–2	90	0.32	5.87	5.13	0.00	None	134165
Dobeckman M–Sat L–86	M–8	90	0.23	2.88	2.68	0.00	None	53–M2–134
Dobeckman H50–M Sat. 86	M–8	90	1.32	2.88	11.00	6.80	Excessive	53–M2–134
Duralac No. R–1900	Composition B	100	0.18	0.47	0.58	0.00	None	51–8–12
Ethyl cellulose E–59–MS	Black powder	–	–	–	–	1.05	Very slight	53–H1–2757
	Haleite	–	–	–	–	0.22	Negligible	"
	M–1	–	–	–	–	4.50	Moderate	"
	M–2	–	–	–	–	0.29	Negligible	"
	PETN	–	–	–	–	0.35	Negligible	"
	RDX	–	–	–	–	0.28	Negligible	"
	T–9	–	–	–	–	1.64	Very slight	"

TABLE 5 (Cont)

Polymer	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Ethyl cellulose E–12–S6	Haleite	—	—	—	—	1.28	Very slight	53–H1–2757
	M–1	—	—	—	—	0.20	Negligible	"
	M–2	—	—	—	—	4.20	Moderate	"
	PETN	—	—	—	—	0.30	Negligible	"
	RDX	—	—	—	—	0.25	Negligible	"
	T–9	—	—	—	—	2.31	Slight	"
Ethyl cellulose–582–JS2	M–9	100	0.00	5.54	6.46	0.92	Negligible	55–M2–45
Ethyl cellulose 15570	M–9	100	0.14	5.54	6.38	0.70	Negligible	55–M2–45
Ethyl cellulose No. 346	JPN	90	0.12	2.36	4.15	1.67	Very slight	53–M2–4
	MRP	90	0.12	1.71	3.55	1.72	Very slight	53–M2–4
	T–2	90	0.04	3.54	4.91	1.33	Very slight	53–M2–4
	T–8	90	0.12	2.04	3.65	1.49	Very slight	53–M2–4
Ethyl cellulose	Igniter Mix K–29	100	0.14	0.34	0.27	0.00	None	52–M2–143
	M–7	90	0.10	1.89	1.91	0.00	None	54–M2–27
	OGK	90	0.10	1.10	1.82	0.62	Negligible	54–M2–27
	T–6	90	0.10	4.56	4.70	0.04	Negligible	54–M2–27
	T–16	90	0.10	2.90	4.18	1.18	Very slight	54–M2–27
	T–19	90	0.10	3.19	3.58	0.29	Negligible	54–M2–27
Ethyl cellulose lacquer Spec 3198	M–7	90	0.10	1.89	1.91	0.00	None	56–M2–26
Fortisan	M–10	90	0.27	6.97	5.37	0.00	None	54–M2–54
	T–18	90	0.26	3.30	11.00	7.44	Excessive	54–M2–54

TABLE 5 (Cont)

Polymer	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Green enamel Spec Mil-E-10687	RDX	100	0.35	0.39	0.89	0.15	Negligible	53-M2-89
	Tetryl	100	0.35	0.28	0.74	0.11	Negligible	53-M2-89
Green lacquer Spec MIL-L-10287	RDX	100	0.61	0.39	0.82	0.00	None	53-M2-89
	Tetryl	100	0.61	0.28	1.52	0.63	Negligible	53-M2-89
Gering (x-6178-87-1)	M-7	90	0.14	2.41	3.18	0.63	Negligible	51-8-13
Hot-Dip No. 215	Black powder	100	0.09	1.72	0.89	0.00	None	56-M2-75
	Cyclotol	100	0.09	0.30	0.89	0.50	Negligible	56-M2-75
	M-8	90	0.35	4.49	6.67	1.93	Very slight	56-M2-75
	M-10	90	0.35	1.65	1.54	0.00	None	56-M2-75
Hot-Dip No. 722	Black powder	100	0.10	1.72	1.15	0.00	None	56-M2-75
	Cyclotol	100	0.10	0.30	0.29	0.00	None	56-M2-75
	M-8	90	0.22	4.49	3.72	0.00	None	56-M2-75
	M-10	90	0.22	1.65	1.35	0.00	None	56-M2-75
Plastacele	Black powder	–	–	–	–	0.63	Negligible	53-H1-2757
	Haleite	–	–	–	–	1.09	Very slight	"
	M-1	–	–	–	–	0.26	Negligible	"
	M-2	–	–	–	–	4.55	Moderate	"
	PETN	–	–	–	–	0.32	Negligible	"
	RDX	–	–	–	–	0.43	Negligible	"
	T-9	–	–	–	–	0.27	Negligible	"
Purple lacquer Jan-L-296	Black powder	100	1.35	0.16	1.62	0.11	Negligible	52-M2-117
	M-7	90	0.63	2.39	2.45	0.00	None	52-M2-117
	Tetryl	100	1.78	0.31	1.74	0.00	None	56-H1-1564
	Tetrytol 75/25	100	1.78	3.84	11.+	5.38	Excessive	56-H1-1564

TABLE 5 (Cont)

Polymer	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Red enamel	RDX	100	0.41	0.39	0.65	0.00	None	53–M2–89
Mil–E–10687	Tetryl	100	0.41	0.28	0.71	0.02	Negligible	53–M2–89
Red lacquer	RDX	100	0.83	0.39	0.91	0.00	None	53–M2–89
Mil–L–10287	Tetryl	100	0.83	0.28	1.35	0.24	Negligible	53–M2–89
Scotch Tape No. 100	T–6	90	0.35	2.50	2.43	0.00	None	51–8–7
Scotch Tape No. 650	Black powder	100	0.03	0.42	0.31	0.00	None	56–M2–37
	Composition B	100	0.03	0.20	1.26	1.03	Very slight	56–M2–37
	M–10	90	0.05	2.26	1.88	0.00	None	56–M2–37
Shellmar 971–R	M–8	90	0.19	2.88	1.49	0.00	None	53–M2–134
Shellmar 1037–B	M–8	90	0.25	2.88	2.20	0.00	None	53–M2–134
Tenite II 265 MS	M–7	100	0.05	1.70	1.35	0.00	None	52–M2–140
Tenite II 203A–S2	Black powder	–	–	–	–	1.70	Very slight	53–H1–2757
	Haleite	–	–	–	–	1.11	Very slight	"
	M–1	–	–	–	–	0.21	Negligible	"
	M–2	–	–	–	–	4.48	Moderate	"
	PETN	–	–	–	–	0.37	Negligible	"
	RDX	–	–	–	–	0.25	Negligible	"
	T–9	–	–	–	–	1.64	Very slight	"
Tenite II 270A–S2	Black powder	–	–	–	–	11.00+	Excessive	53–H1–2757
	Haleite	–	–	–	–	1.14	Very slight	"
	M–1	–	–	–	–	0.28	Negligible	"
	M–2	–	–	–	–	4.64	Moderate	"
	PETN	–	–	–	–	0.32	Negligible	"
	RDX	–	–	–	–	0.28	Negligible	51-H1-136883
	T–9	–	–	–	–	1.43	Very slight	51-H1-136883

TABLE 5 (Cont)

Polymer	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Triacetate cloth Bale No. 26	Black powder	100	0.36	0.09	0.45	0.00	None	57–H1–321
	M–1	100	0.52	−0.09	0.43	0.00	None	57–H1–321
	M–2	100	7.58	−3.53	4.05	0.00	None	57–H1–321
	M–15	100	5.30	−3.37	1.93	0.00	None	57–H1–321
TVA	T–2	90	0.07	6.47	5.68	0.00	None	51–8–6
	Type O prop.	90	0.07	2.04	1.77	0.00	None	51–8–6
Viscose rayon cloth G–14	Black powder	100	0.73	0.23	0.87	0.00	None	57–H1–321
	M–1	100	0.73	0.39	3.10	1.98	Very slight	57–H1–321
	M–2	100	0.73	7.45	11.+	3.82+	Slight	57–H1–321
	M–15	100	0.73	5.17	5.76	0.00	None	57–H1–321
Zapon No. 2360	RDX	100	0.83	0.36	0.45	0.00	None	54–M2–44
	Tetryl	100	0.83	0.09	0.61	0.00	None	54–M2–44
Zapon No. 3–291–A	Lead azide	100	3.40	1.95	3.15	0.00	None	51–8–3
	PETN	100	1.20	0.66	1.10	0.00	None	51–8–3
	Squib mix	100	1.50	7.15	10.45	1.80	Very slight	51–8–19
Rayon, wax coated	M–9	90	0.33	5.07	4.58	0.00	None	52–M2–169

TABLE 6

Changes in Appearance of Cellulosics After Storage

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Appearance of Specimen	Picatinny Report No.
CMC No. 346	JPN	26	50	—	53–M2–4
(Sodium carboxy	MRP	24	50	No change	53–M2–4
methyl cellulose)	T–2	24	50	No change	53–M2–4
	T–8	24	50	Slightly hardened	53–M2–4
Duralac No. R–1900	Composition B	22	76	Browned, lost adhesion	51–8–12
Ethyl cellulose No. 346	JPN	26	50	—	53–M2–4
	MRP	24	50	Amber, softened	53–M2–4
	T–2	24	50	Amber, softened	53–M2–4
	T–8	24	50	Turned amber and softened	53–M2–4
Ethyl cellulose lacquer	M–7	10	50	Darkened	54–M2–27
Spec 3–198	OGK	10	50	Turned yellow, lost adhesion	54–M2–27
	T–6	10	50	Softened	54–M2–27
	T–16	10	50	Turned yellow, lost adhesion	54–M2–27
	T–19	10	50	Turned yellow, lost adhesion	54–M2–27
Scotch tape No. 650	Black powder	52	76	No change	53–M2–37
	Composition B	52	71	Slightly dried out	53–M2–37
	M–10	52	76	Deteriorated	53–M2–37
Hot dip No. 215	Black powder	32	76	Hardened	56–M2–75
Ethyl cellulose	Cyclotol 75/25	32	71	Hardened and became darker	56–M2–75
	M–8	32	50	Softened, faded	56–M2–75
	M–10	32	76	Hardened	56–M2–75
Hot dip No. 222	Black powder	32	76	Hardened and became coated	56–M2–75
Cellulose acetate	Cyclotol 75/25	32	71	Softened and swelled	56–M2–75
butyrate	M–8	12	50	Deteriorated	56–M2–75
	M–10	16	76	Deteriorated	56–M2–75

TABLE 6 (Cont)

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Appearance of Specimen	Picatinny Report No.
TYA	T–2	15	50	Yellowed, softened	51–8–6
	Type 0 prop.	15	50	Yellowed, softened	51–8–6
Purple lacquer	Black powder	19	76	Turned green and became brittle	52–M2–117
	M–7	19	50	Yellowed, softened, and lost adhesion	52–M2–117
Pettman cement	OGK	10	50	No change	52–M2–43
	T–2	10	50	Lost adhesion, surface became oily	52–M2–43
	T–6	10	50	No change	52–M2–43
	T–8	10	50	Surface became oily	52–M2–43
	T–9	10	50	No change	52–M2–43

TABLE 7

Percent Change in Weight of Cellulosics After Storage

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Control	Sample	Picatinny Report No.
CMC No. 346	JPN	26	50	−10.80	− 4.10	53–M2–4
Sodium carboxy methyl cellulose	MRP	24	50	−10.80	− 9.92	53–M2–4
	T–2	24	50	−10.80	− 9.76	53–M2–4
	T–8	24	50	−10.80	− 8.36	53–M2–4
Cellulose nitrate film	Black powder	24	76	+ 8.15	+ 7.45	52–M2–6
	M–1	24	50	+ 0.24	+ 5.27	52–M2–6
Ethocel Lt–51	M–8	4	50	+ 0.12	+19.9	BZ3–11
Ethyl cellulose No. 346	JPN	26	50	− 0.64	+12.90	53–M2–4
	MRP	24	50	− 0.64	+13 20	53–M2–4
	T–2	24	50	− 0.64	+ 9.92	53–M2–4
	T–8	24	50	− 0.64	+ 4.45	53–M2–4
Ethyl cellulose lacquer	K–29 igniter	9	50	− 0.02	− 0.05	52–M2–143
Gering X–6178–87–1	M–7	37	50	− 1.69	+ 2.40	51–8–13
Hot dip No. 215	Black powder	32	76	− 4.23	− 6.37	56–M2–75
Ethyl cellulose	Cyclotol 75/25	32	71	− 4.23	+ 7.49	56–M2–75
	M–8	32	50	− 2.92	+21.3	56–M2–75
	M–10	32	76	− 4.23	− 7.59	56–M2–75
Hot dip No. 222	Black powder	32	76	− 3.39	− 9.89	56–M2–75

TABLE 7 (Cont)

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Control	Sample	Picatinny Report No.
Cellulose acetate butyrate	Cyclotol 75/25	28	71	−3.39	+28.5	56–M2–75
	M–8	12	50	−3.39	Deteriorated	56–M2–75
	M–10	20	76	−2.12	Deteriorated	55–M2–75
Shellmar No. 971–R	M–8	8	50	−6.19	+14.9	53–M2–134
Shellmar No. 1037–B	M–8	8	50	−5.07	− 1.19	53–M2–134
Tenite II – 265 MS	M–7	9	50	−0.21	+20.10	52–M2–140
TVA	T–2	15	50	−1.7	Powder adhered	51–8–6
	Type O	15	50	−1.7	Powder adhered	51–8–6

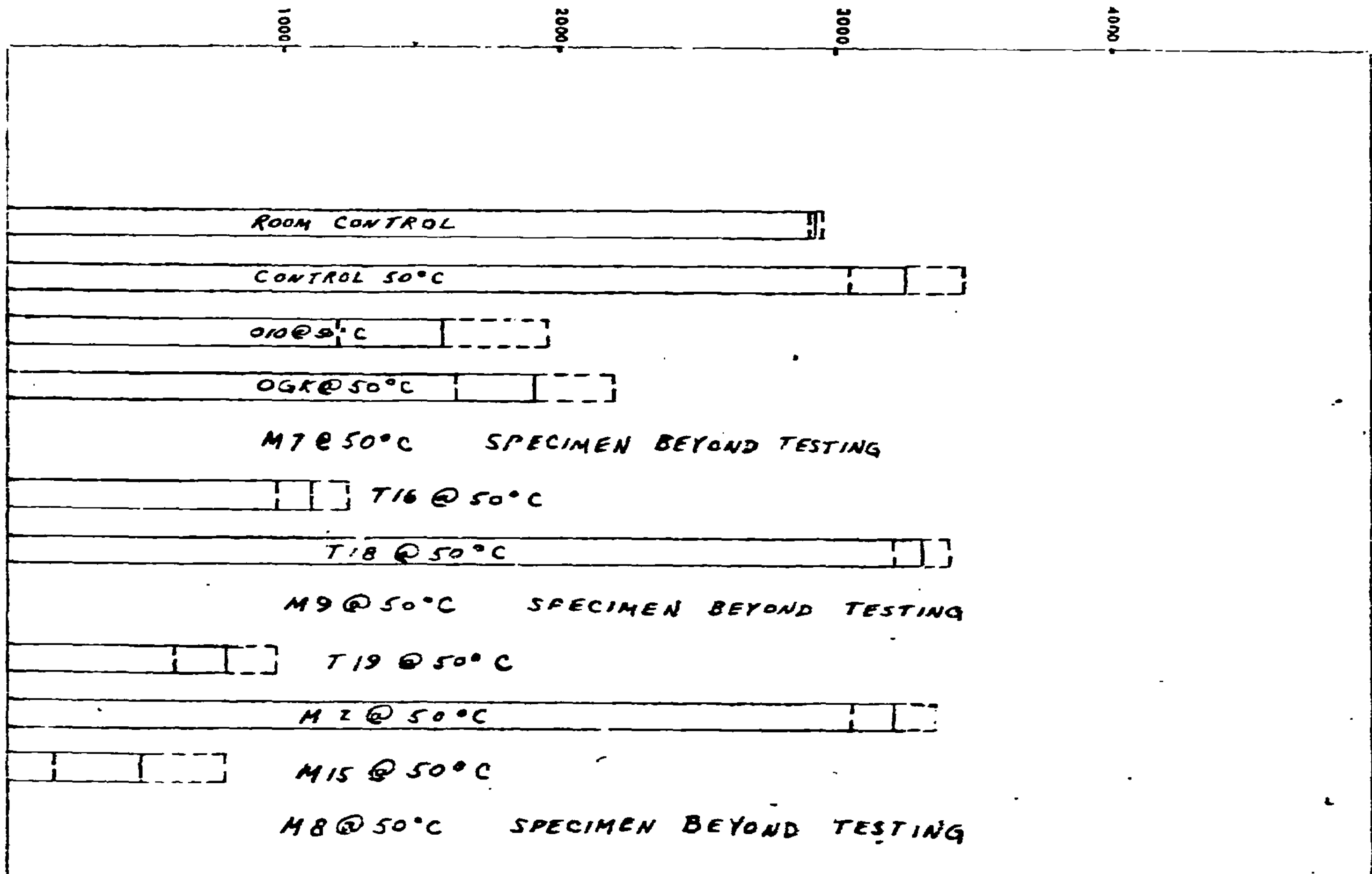

Fig 6 Maximum Tensile of Cellulose Acetate 632 × 59 H-MS After 12 Months Storage With Various Propellants (Range of standard deviations is indicated by broken lines)

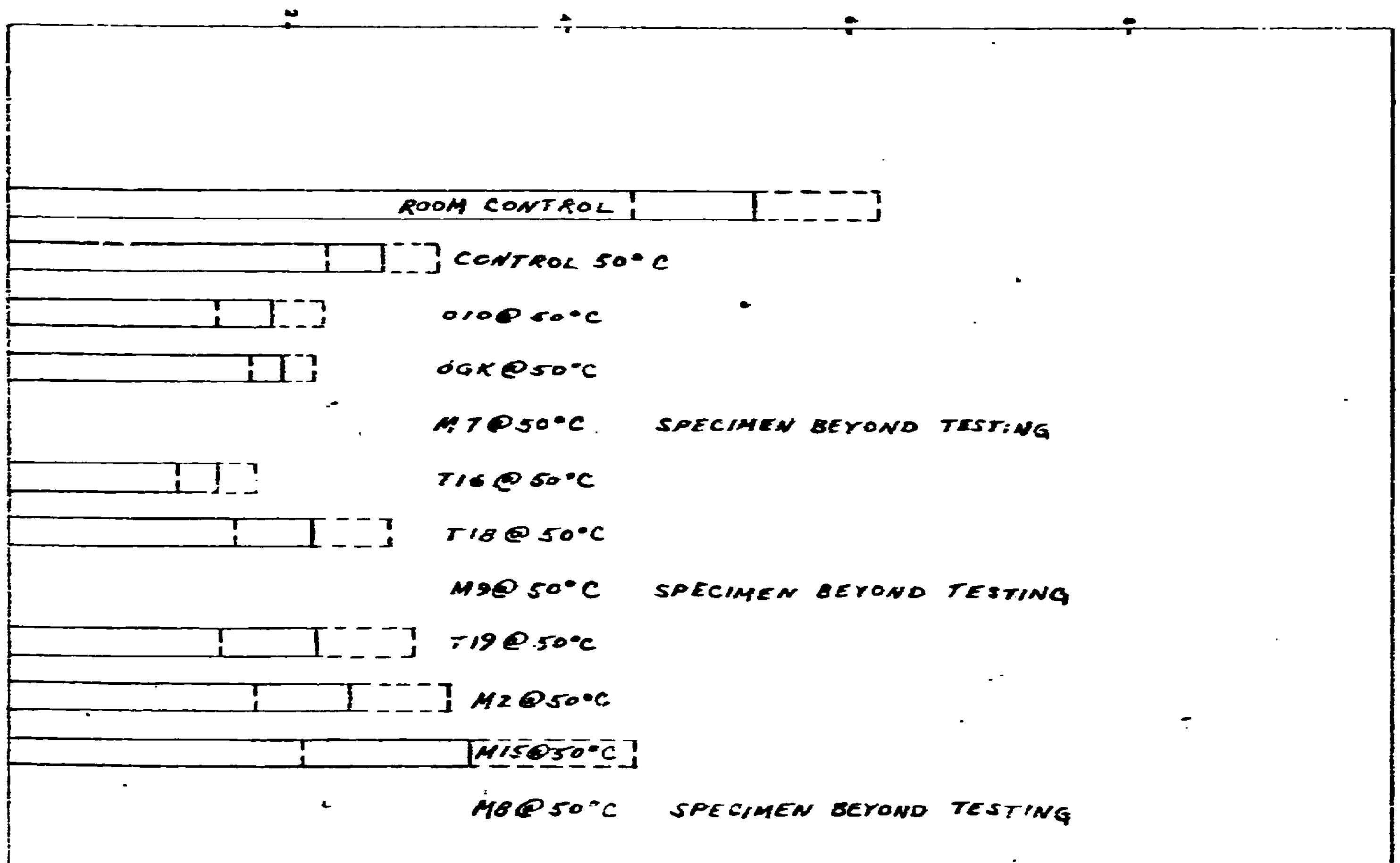

Fig 7   Impact Strength of Cellulose Acetate 632 × 59 H-MS After 12 Months Storage With Various Propellants

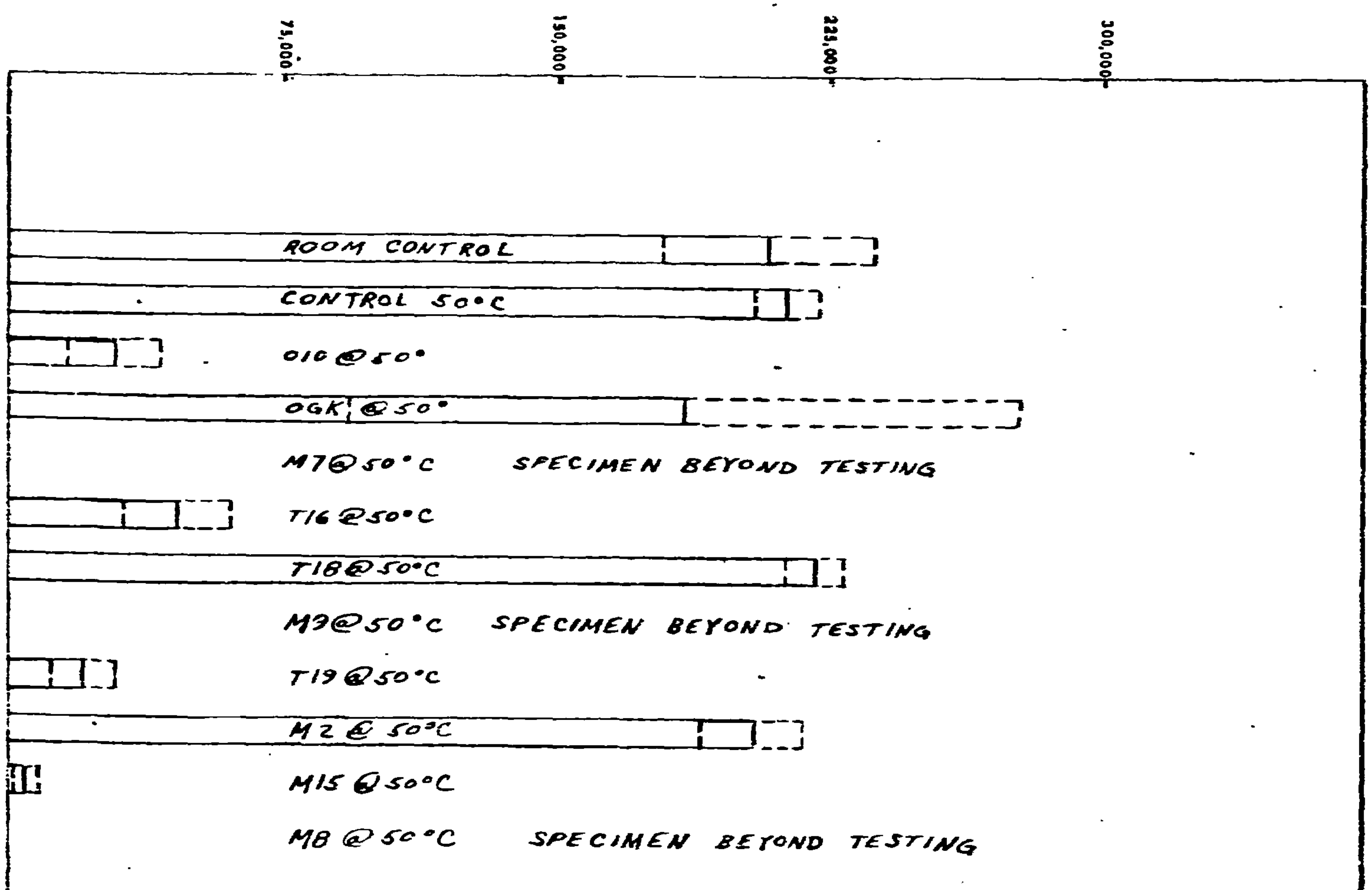

Fig 8 Modulus of Cellulose Acetate 632 × 59 H-MS After 12 Months Storage With Various Propellants

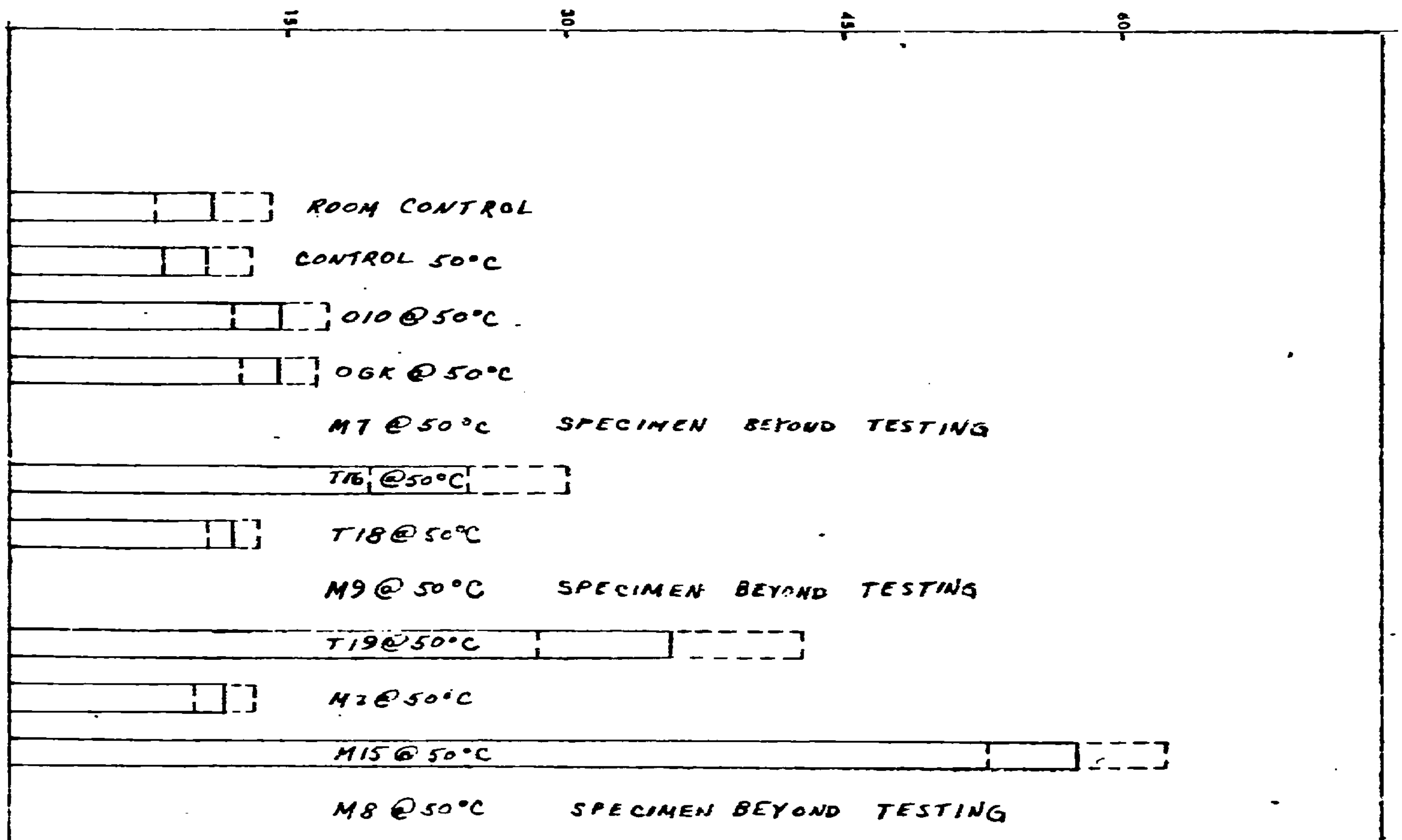

Fig 9 Percent Elongation at Break of Cellulose Acetate 632 × 59-H-MS After 12 Months Storage With Various Propellants

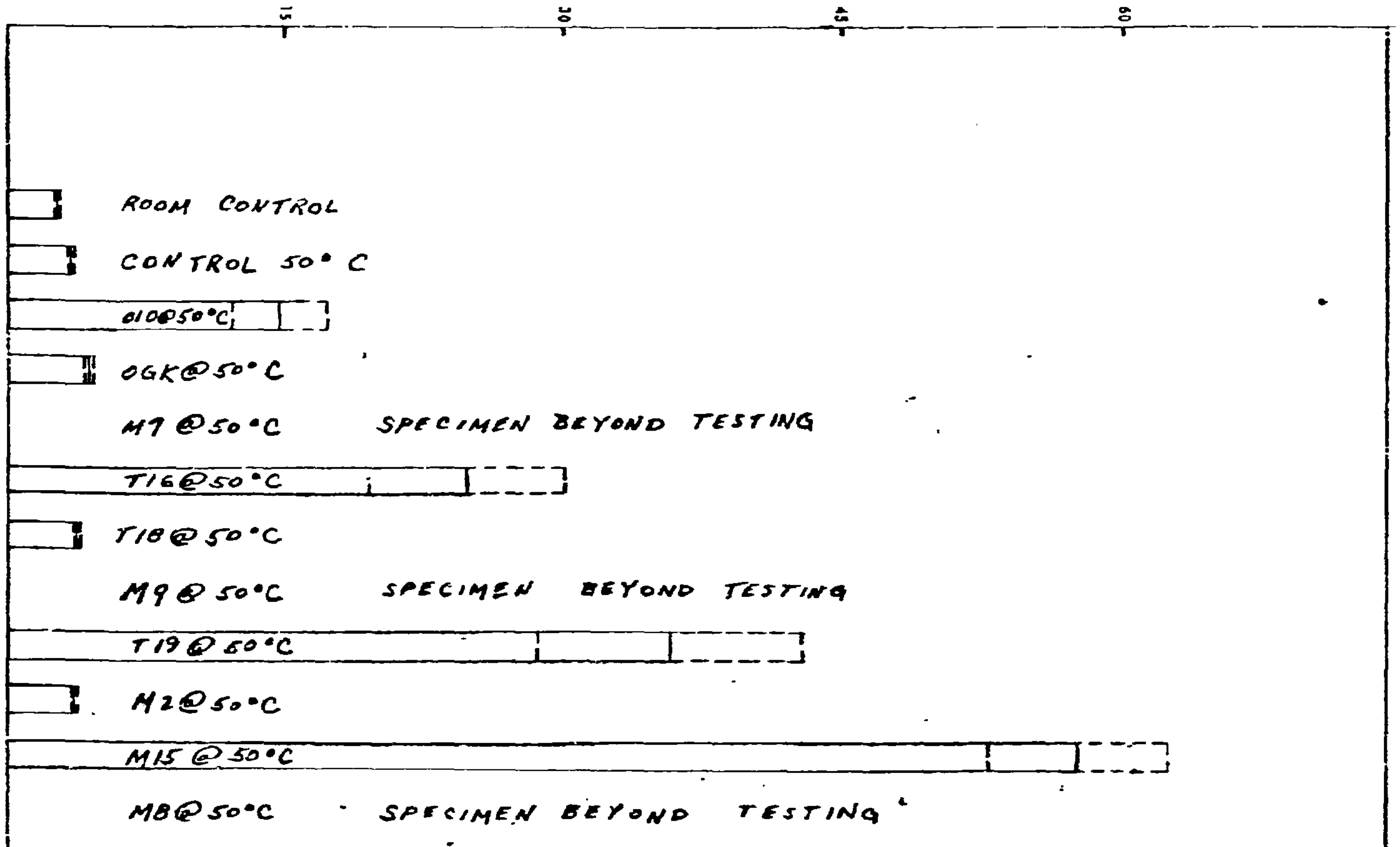

Fig 10 Percent Elongation at Yield of Cellulose Acetate 632 × 59 H-MS After 12 Months Storage With Various Propellants

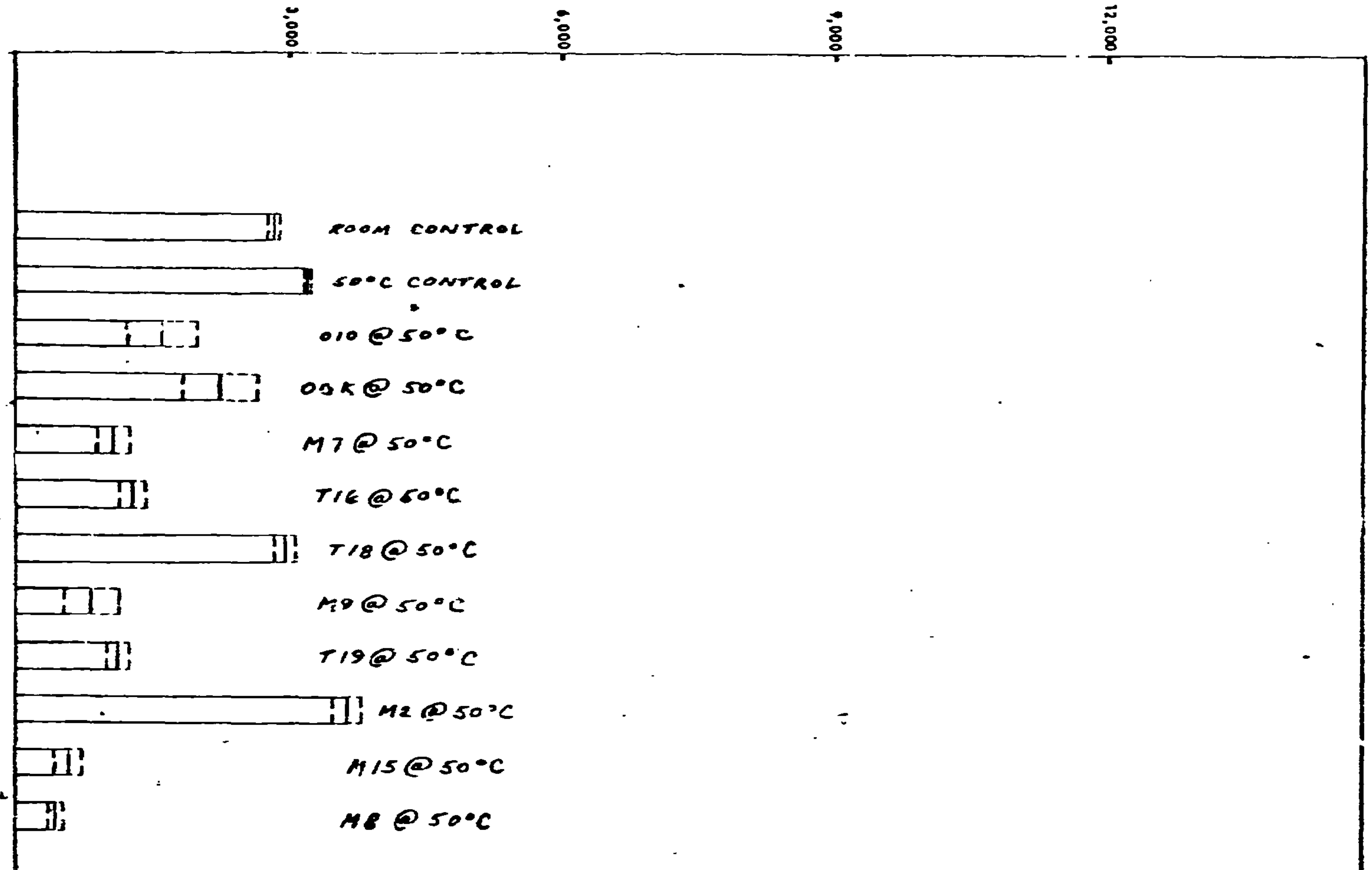

Fig 11 Maximum Tensile Strength of Cellulose Acetate 632 × 59C-MS After 12 Months Storage With Various Propellants

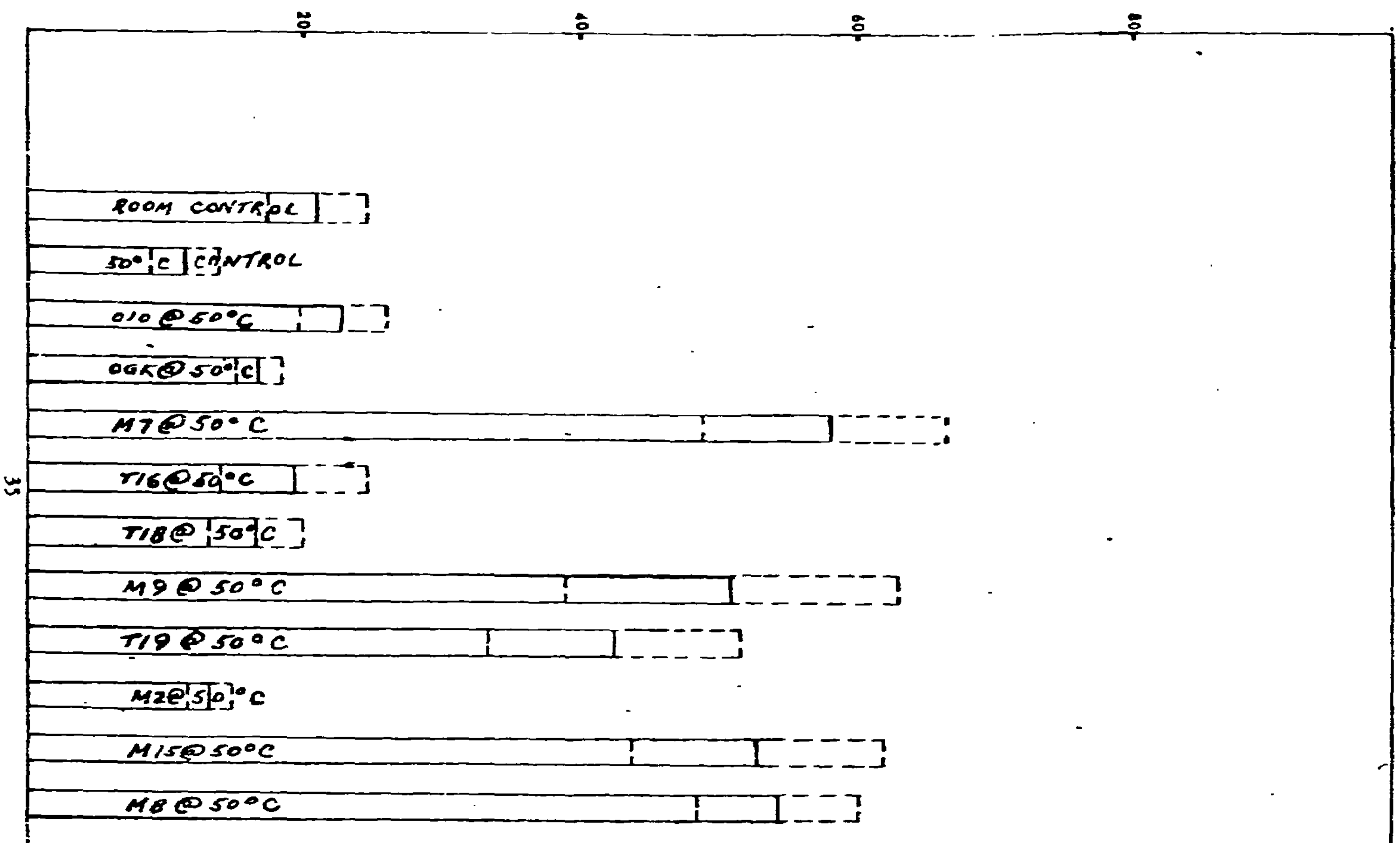

Fig 12   Percent Elongation at Break of Cellulose Acetate 632 × 59C-MS After Storage With Various Propellants

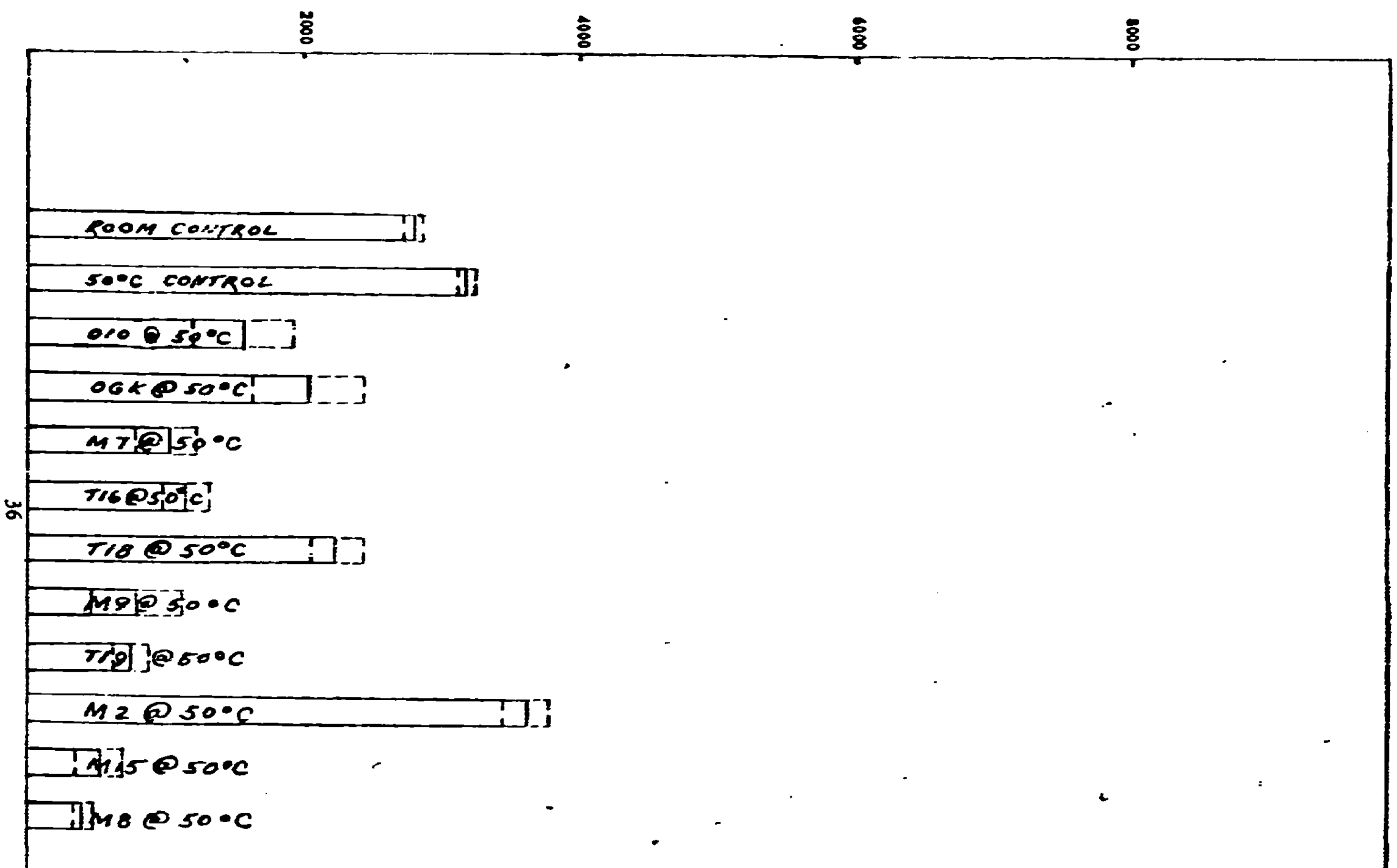

Fig 13 Yield Strength of Cellulose Acetate 632 × 59C-MS After 12 Months Storage With Various Propellants

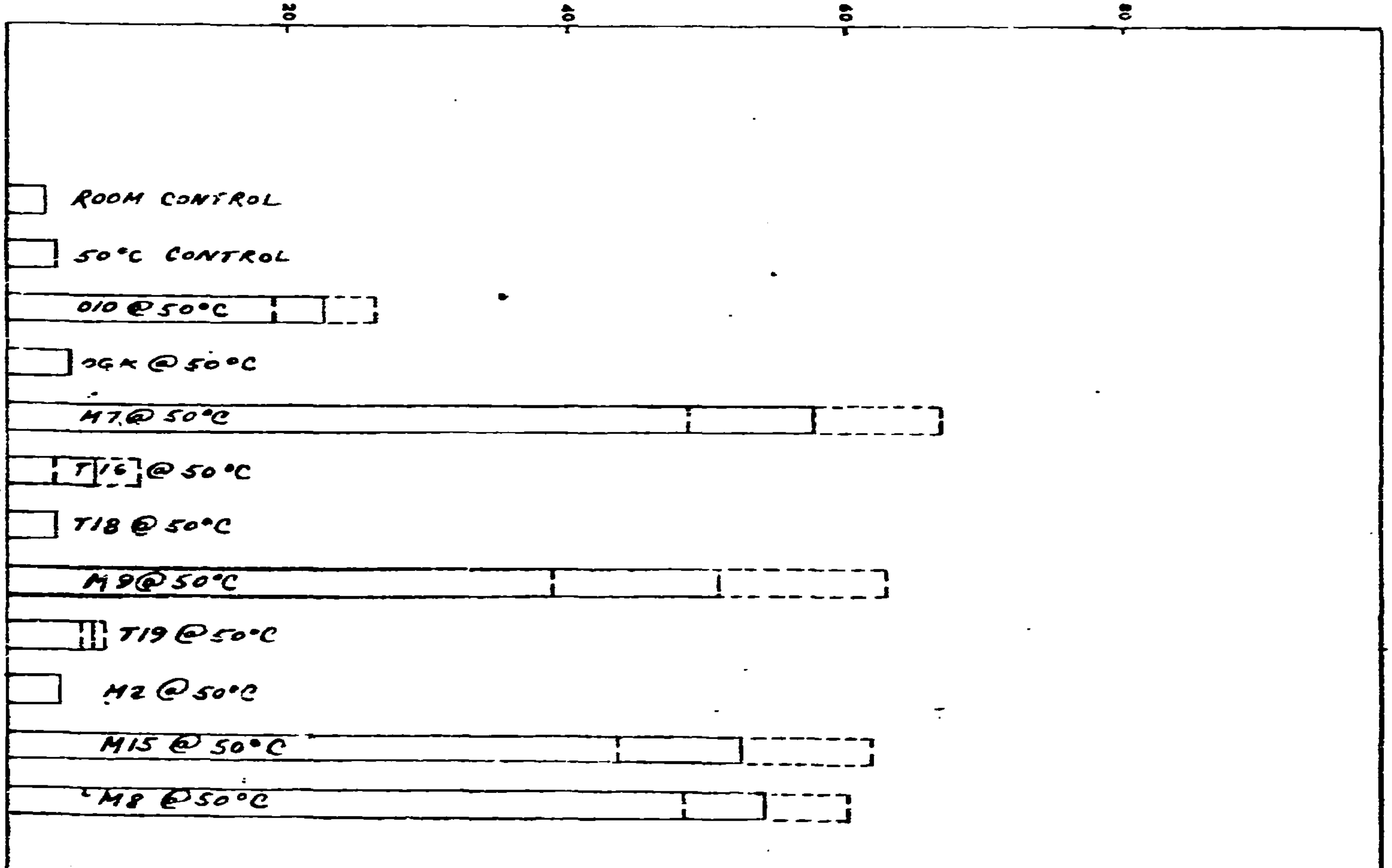

Fig 14 Percent Elongation at Yield of Cellulose Acetate 632 × 59C-MS After 12 Months Storage With Various Propellants

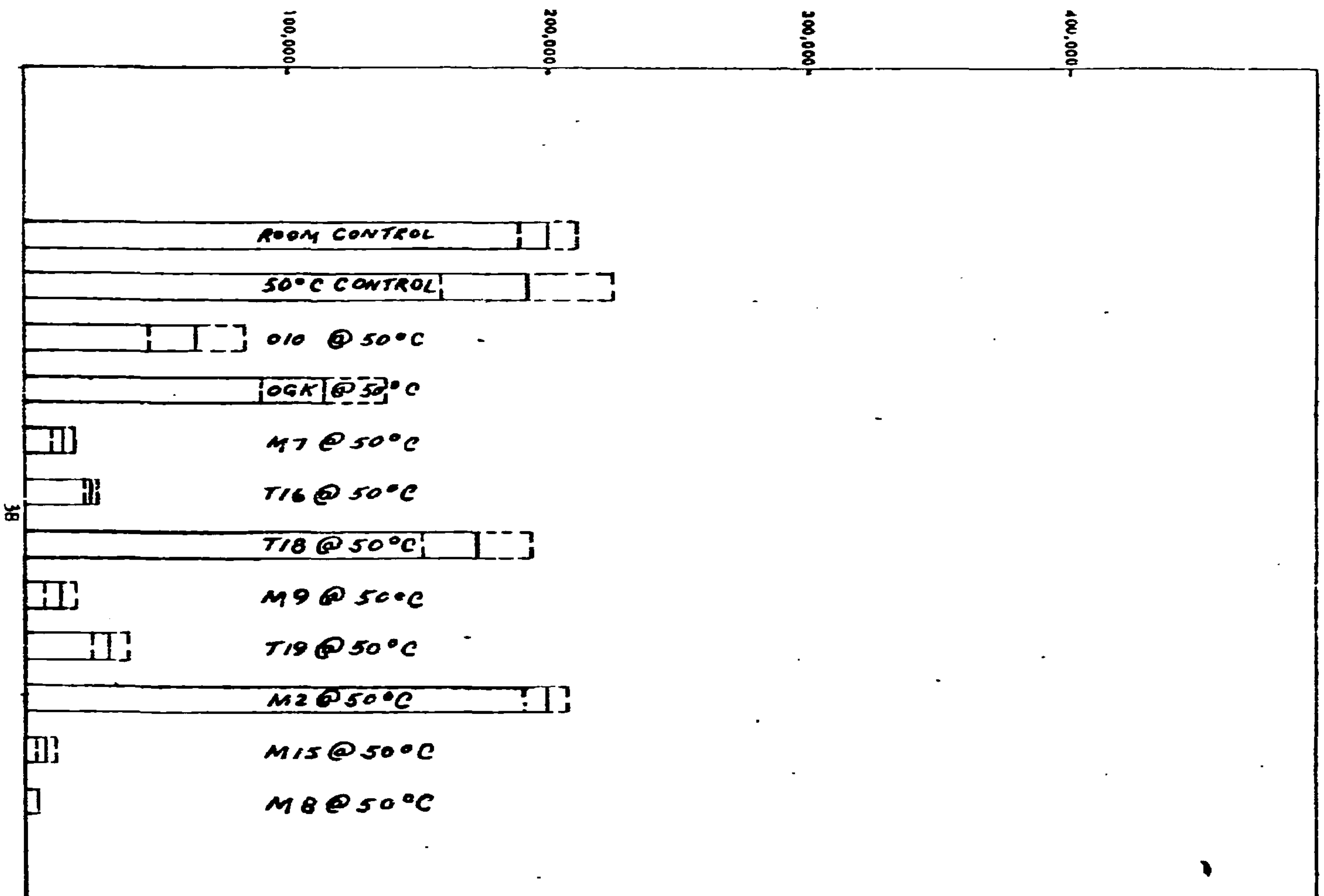

Fig 15   Modulus of Elasticity of Cellulose Acetate 632 × 59C-MS After 12 Months Storage With Various Propellants

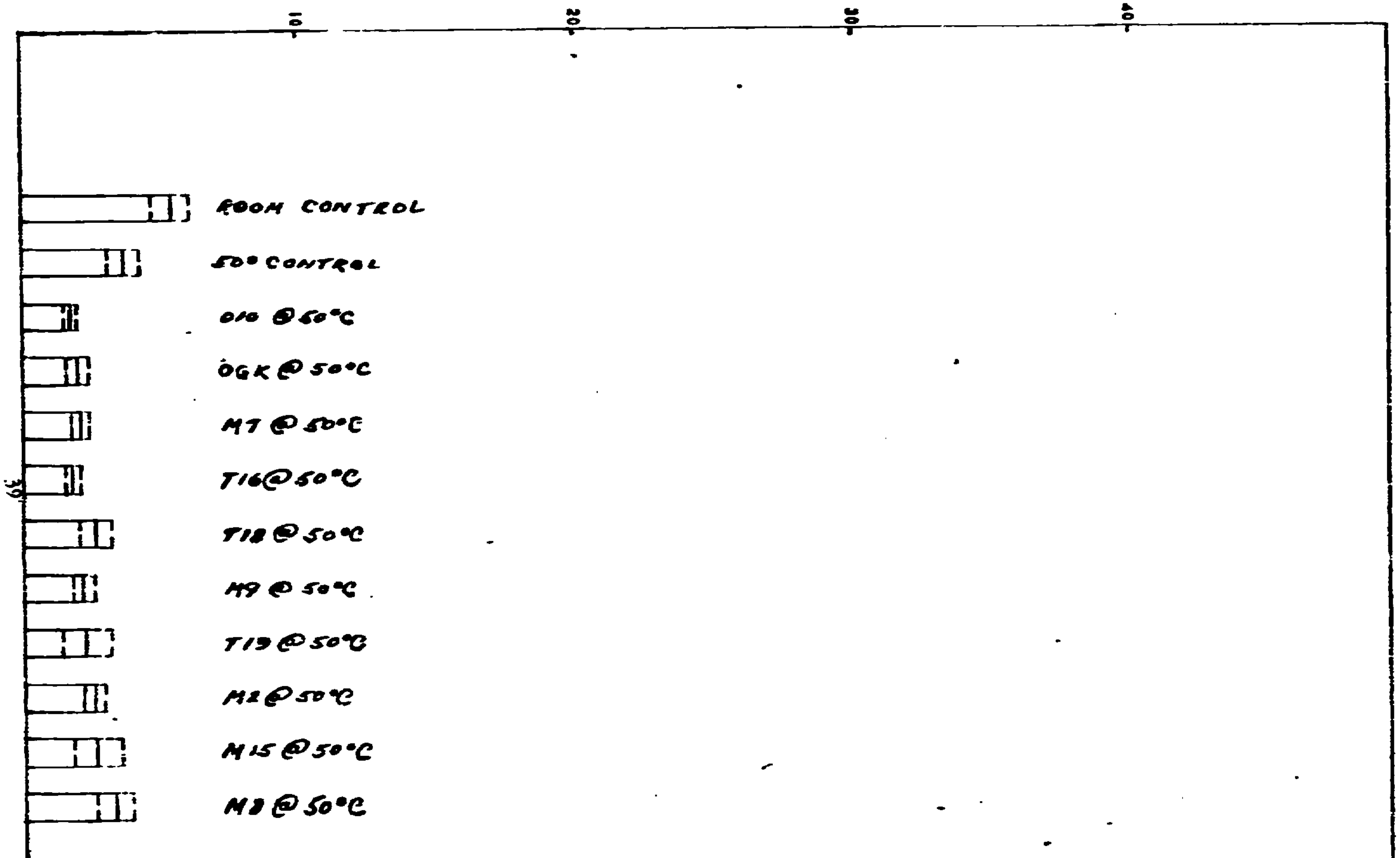

Fig 16 Impact Strength of Cellulose Acetate 632 × 59C-MS After 12 Months Storage With Various Propellants

TABLE 8

100°C Heat Test Results for Cellulosics

Material and Weight, Gm	Explosive and Weight, Gm	1st 48 Hrs Gm	1st 48 Hrs %	2nd 48 Hrs Gm	2nd 48 Hrs %	Explosion in 100 Hrs	Picatinny Report No.
Cellophane–300 PC.	Primer Mix F.A. 70						
0.6	0.6	0.0482	4.03	0.0050	0.43	None	53–M2–72
0.6	—	0.0492	8.20	0.0024	0.60	None	53–M2–72
—	0.6	0.0009	0.10	0.0001	0.02	None	53–M2–72
Green enamel	Primer Mix M–20						
0.6	0.6	0.0128	1.07	0.0015	0.12	None	53–M2–89
0.6	—	0.0100	1.67	0.0016	0.27	None	53–M2–89
—	0.6	0.0019	0.32	0.0004	0.06	None	53–M2–89
	Lead Azide						
0.6	0.6	0.0144	1.20	0.0019	0.14	None	53–M2–89
0.6	—	0.0100	1.67	0.0016	0.27	None	53–M2–89
—	0.6	0.0043	0.72	0.0000	0.00	None	53–M2–89
	Primer Mix–100						
0.6	0.6	0.0127	1.06	0.0017	0.14	None	53–H2–89
0.6	—	0.0100	1.67	0.0016	0.27	None	53–H2–89
—	0.6	0.0006	0.10	0.0000	0.00	None	53–H2–89
	Primer Mix–Nol 130						
0.6	0.6	0.0239	1.99	0.0033	0.28	None	53–M2–89
0.6	—	0.0100	1.67	0.0016	0.27	None	53–M2–89
—	0.6	0.0083	1.38	0.0015	0.25	None	53–M2–89
Green lacquer	Lead Azide						
0.6	0.6	0.1979	16.49	0.0083	0.69	None	53–M2–89
0.6	—	0.0033	0.55	0.0056	0.93	None	53–M2–89
—	0.6	0.0043	0.72	0.0000	0.00	None	53–M2–89

TABLE 8 (Cont)

Material and Weight, Gm	Explosive and Weight, Gm	1st 48 Hrs Gm	1st 48 Hrs %	2nd 48 Hrs Gm	2nd 48 Hrs %	Explosion in 100 Hrs	Picatinny Report No.
Green lacquer	Primer Mix M-20						
0.6	0.6	0.0104	0.87	0.0060	0.50	None	53-M2-89
0.6	—	0.0033	0.55	0.0056	0.93	None	53-M2-89
—	0.6	0.0019	0.32	0.0004	0.06	None	53-M2-89
	Primer Mix-100						
0.6	0.6	0.0053	0.44	0.0042	0.35	None	53-M2-89
0.6	—	0.0033	0.55	0.0056	0.93	None	53-M2-89
—	0.6	0.0006	0.10	0.0000	0.00	None	53-M2-89
	Primer Mix-Nol 130						
0.6	0.6	0.0181	1.50	0.0073	0.61	None	53-M2-89
0.6	—	0.0033	0.55	0.0056	0.93	None	53-M2-89
—	0.6	0.0083	1.38	0.0015	0.25	None	53-M2-89
Red enamel MIL-E-10687	Lead Azide						
0.6	0.6	0.0106	0.88	0.0017	0.14	None	53-M2-89
0.6	—	0.0100	1.66	0.0011	0.18	None	53-M2-89
—	0.6	0.0043	0.72	0.0000	0.00	None	53-M2-89
	Primer Mix M-20						
0.6	0.6	0.123	1.02	0.0017	0.14	None	53-M2-89
0.6	—	0.0100	1.66	0.0011	0.18	None	53-M2-89
—	0.6	0.0019	0.32	0.0004	0.06	None	53-M2-89
Red enamel	Primer Mix-100						
0.6	0.6	0.0101	0.84	0.0020	0.17	None	53-M2-89
0.6	—	0.0100	1.66	0.0011	0.18	None	53-M2-89
—	0.6	0.0006	0.10	0.0000	0.00	None	53-M2-89

TABLE 8 (Cont)

Material and Weight, Gm	Explosive and Weight, Gm	1st 48 Hrs		2nd 48 Hrs		Explosion in 100 Hrs	Picatinny Report No.
		Gm	%	Gm	%		
Red enamel	Primer Mix–Nol 130						
0.6	0.6	0.0232	1.93	0.0028	0.23	None	53–M2–89
0.6	–	0.0100	1.66	0.0011	0.18	None	53–M2–89
–	0.6	0.0083	1.38	0.0015	0.25	None	53–M2–89
Red lacquer	Lead Azide						
0.6	0.6	0.0125	1.04	0.0079	0.66	None	53–M2–89
0.6	–	0.0039	0.65	0.0030	0.50	None	53–M2–89
–	0.6	0.0043	0.72	0.0000	0.00	None	53–M2–89
	Primer Mix–100						
0.6	0.6	0.0055	0.46	0.0040	0.33	None	53–M2–89
0.6	–	0.0039	0.65	0.0030	0.50	None	53–M2–89
–	0.6	0.0006	0.10	0.0000	0.00	None	53–M2–89
	Primer Mix M–[illegible]0						
0.6	0.6	0.0059	0.49	0.0044	0.37	None	53–M2–89
0.6	–	0.0039	0.65	0.0039	0.50	None	53–M2–89
–	0.6	0.0019	0.32	0.0004	0.06	None	53–M2–89
	Primer Mix Nol–130						
0.6	0.6	0.0095	0.79	0.0065	0.54	None	53–M2–89
0.6	–	0.0039	0.65	0.0030	0.50	None	53–M2–89
–	0.6	0.0083	1.38	0.0015	0.25	None	53–M2–89

TABLE 9

Physical Property Changes In Material 632X59 H–MS
(Cellulose acetate, pink)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	$\sigma \pm$	Elongation at Break, %	$\sigma \pm$	Yield Strength, psi	$\sigma \pm$	Elongation at Yield, %	$\sigma \pm$	Proportional Limit, psi	$\sigma \pm$	Modulus of Elasticity, psi	$\sigma \pm$	Work at Yield, ft lbs	$\sigma \pm$
Original Control	0	0.0	2350	342	16.0	3.4	2350	342	2.9	0.0	1650	166	145×10^3	8,109	4.1	0.3
Room Control	12	−0.6	2970	28	11.1	3.2	2970	28	2.7	0.1	1950	185	210×10^3	29,274	4.60	0.3
50°C Control	12	−3.4	3300	215	10.8	2.4	3302	215	3.4	0.2	1730	227	215×10^3	8,573	6.74	0.81
In contact with OGK at 50°C	7	+17.1	1940	290	14.7	2.1	1940	290	4.6	0.2	918	207	187×10^3	92,729	5.37	0.
In contact with OID at 50°C	7	+19.8	1600	386	14.8	2.6	1660	386	14.8	2.6	852	243	28.5×10^3	13,091	–	–
In contact with M2 at 50°C	12	+3.6	3260	154	11.7	1.7	3260	154	3.6	0.1	1710	157	206×10^3	14,056	7.12	0.45
In contact with M7 at 50°C	7	+53.6				Specimens deteriorated beyond testing										
In contact with [illegible] at 50°C	5	+68.1				Specimens deteriorated beyond testing										
In contact with M9 at 50°C	7	+53.8				Specimens deteriorated beyond testing										
In contact with M13 at 50°C	7	+40.4	485	314	58.3	4.9	485	314	58.3	4.9	87.8	82	4.42×10^3	3,460	–	–
In contact with T16 at 50°C	7	+26.3	1120	151	25.1	5.4	1120	151	25.1	5.4	493	57	46.4×10^3	14,990	3.32	0.34
In contact with T18 at 50°C	12	+7.3	3360	100	12.2	1.4	3360	100	3.7	0.2	1640	58	223×10^3	8,194	7.65	0.60
In contact with T19 at 50°C	7	+29.6	801	186	36.1	7.2	801	186	3.6	7.2	380	162	19.8×10^3	9,043	–	–

TABLE 10

Physical Property Changes in Material 632X59 D-MS
(Cellulose acetate, green)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft-lbs	σ ±	Work to Produce Failure, ft-lbs	σ ±
Original Control	0	0.0	3440	163	4.6	1.4	3440	163	2.5	0.1	1530	204	275×10^3	40,200	4.4	0.4	—	—
Room Control	12	−0.7	4210	82	10.3	2.7	4210	82	2.8	0.1	3090	239	274×10^3	19,300	6.99	0.29	30.1	7.6
50°C Control	12	−2.7	4760	231	45.4	1.9	4760	231	3.3	0.1	3150	395	266×10^3	12,700	9.24	0.63	25.0	7.3
In contact with OGK at 50°C	12	+13.2	3696	297	10.6	2.1	3696	297	3.6	0.2	2300	76	196×10^3	[illegible]	7.67	[illegible]	[illegible]	[illegible]
In contact with ORD at 50°C	12	+22.5	3030	301	12.8	2.1	3030	301	3.6	0.1	2000	235	168×10^3	20,200	6.51	0.48	28.5	4.8
In contact with M2 at 50°C	12	+2.5	3950	127	8.8	4.3	3950	127	2.2	0.1	2290	664	276×10^3	44,400	7.65	0.37	25.3	3.5
In contact with M7 at 50°C	6	+40.1	1576	217	11.3	1.4	1576	217	4.3	0.3	1030	111	81.6×10^3	9,400	4.07	0.72	13.1	2.8
In contact with M8 at 50°C	4	+58.7	721	176	33.8	2.3	721	176	33.8	2.3	207	38	13.1×10^3	5,810	—	—	13.4	4.4
In contact with M9 at 50°C	5	+40.8	1600	310	11.3	2.9	1600	310	4.1	0.7	926	100	81.9×10^3	19,200	4.05	3.33	13.2	[illegible]
In contact with M15 at 50°C	6	+56.7	1710	397	14.2	3.7	1710	397	3.8	1.6	925	196	88.3×10^3	13,800	4.31	0.57	18.4	3.6
In contact with T16 at 50°C	12	+25.0	2840	306	14.9	4.9	2840	306	3.6	0.2	1330	95	138×10^3	15,600	6.27	0.79	31.5	10.4
In contact with T18 at 50°C	12	+5.4	4710	256	9.7	1.6	4710	256	3.5	0.1	2900	475	$27\_ \times 10^3$	26,600	9.58	0.87	32.6	5.8
In contact with T19 at 50°C	6	+29.4	2350	297	10.0	2.3	2350	297	3.7	1.8	1110	475	113×10^3	14,900	7.12	1.4	16.9	5.8

TABLE II

Physical Property Changes in Material 632X59 C-MS
(Cellulose acetate, amber)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength psi	σ ±	Elongation at Yield %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft-lbs	σ ±	Work to Produce Failure, ft-lbs	σ ±
Original Control	—	0.0	3120	68	16.7	4.0	3120	68	2.8	0.3	2340	217	185×10^3	11,535	7.3	0.4	—	—
Room Control	12	− 0.6	2860	74	21.3	3.7	2860	74	2.7	0.1	1898	140	202×10^3	11,594	4.5	0.24	43.9	8.2
50°C Control	12	− 2.5	3240	49	11.6	2.5	3240	49	3.4	0.0	2063	98	194×10^3	33,710	1.39	0.64	23.7	4.3
In contact with OGK at 50°C	12	+26.6	2250	427	17.8	1.7	2070	609	4.5	0.2	1210	206	115×10^3	24,285	5.69	0.96	20.5	7.2
In contact with O4O at 50°C	12	+22.1	1605	355	22.4	3.7	1562	355	22.9	3.7	691	182	65.9×10^3	18,571	—	—	24.7	2.2
In contact with M2 at 50°C	12	+ 2.4	3670	163	13.4	1.7	3670	163	3.7	0.1	2200	115	201×10^3	8,526	9.13	0.77	37.3	6.4
In contact with M7 at 50°C	6	+46.6	1052	176	58.6	9.2	1052	176	58.6	9.2	274	61	14.1×10^3	4,290	—	—	32.2	5.9
In contact with M8 at 50°C	4	+43.8	413	72	55.1	5.9	412	72	55.1	5.9	117	27	4.77×10^3	1,076	—	—	13.7	3.3
In contact with M9 at 50°C	6	+41.2	821	328	52.7	12.2	821	328	52.7	12.2	232	95	13.2×10^3	6,392	—	—	23.7	11.3
In contact with M15 at 50°C	7	+47.4	552	157	53.6	9.2	552	157	53.6	9.2	199	44	7.54×10^3	6,265	—	—	17.0	5.9
In contact with T16 at 50°C	8	+27.6	1283	193	19.6	3.4	1156	167	6.4	3.1	782	126	24.7×10^3	2,692	5.80	3.83	19.5	4.2
In contact with T18 at 50°C	12	+ 4.1	2990	127	16.7	3.3	2260	187	3.6	0.2	1720	263	178×10^3	20,926	6.54	0.75	18.5	9.7
In contact with T19 at 50°C	8	+34.9	1190	127	43.1	9.2	734	129	5.2	0.9	485	135	32.2×10^3	6,851	2.35	0.25	29.9	5.6

TABLE 12

Physical Property Changes in Material 632X59 B-H2
(Cellulose acetate, water-colored)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, in lbs	σ ±	Work to Produce Failure, in lbs	σ ±
Original Control	0	0.0	5130	166	12.9	4.2	5110	168	2.9	0.1	2950	197	377,000	[illegible]	9.9	0.6	48.7	17.2
Room Control	12	− 0.5	6640	113	9.5	2.5	6640	113	3.3	0.1	3770	292	[illegible]	4,820	31.4	0.6	41.5	12.1
50°C Control	12	− 1.6	6630	157	7.7	0.7	6630	157	3.6	0.2	3870	135	345,000	21,900	15.2	3.3	30.9	5.6
In contact with OGE at 50°C	12	+19.6	4450	274	9.6	1.9	4450	274	3.8	0.2	2570	182	232,000	20,605	9.28	0.54	28.5	6.4
In contact with O80 at 50°C	12	+24.4	4130	586	12.1	2.7	4130	586	3.8	0.1	2450	264	[illegible]	[illegible]	[illegible]	1.19	34.8	6.7
In contact with M2 at 50°C	12	+ 1.1	5820	172	10.0	2.5	5820	172	3.9	0.1	3450	126	[illegible]	[illegible]	12.1	0.5	39.1	12.3
In contact with M7 at 50°C	5	+40.0	3320	778	9.4	1.4	3320	778	3.6	0.2	2160	427	[illegible]	[illegible]	7.15	1.53	21.9	3.1
In contact with M8 at 50°C	5	+47.1	1330	452	13.4	5.9	1330	452	4.6	1.9	824	474	[illegible]	25,000	3.49	1.01	[illegible]	1.9
In contact with M9 at 50°C	5	+40.3	3390	226	10.7	2.9	3398	225	3.6	0.1	1970	243	[illegible]	17,900	7.3	2.29	23.9	6.0
In contact with M15 at 50°C	5	+34.9	1760	352	13.9	6.5	1760	352	3.9	2.6	1050	491	[illegible]	[illegible]	[illegible]	0.78	24.1	4.1
In contact with T16 at 50°C	12	+32.6	3230	497	13.1	3.5	3230	497	3.4	0.5	2100	294	[illegible]	33,140	[illegible]	0.94	29.4	9.3
In contact with T18 at 50°C	12	+ 8.8	4910	107	10.1	2.0	4910	107	3.5	0.2	[illegible]	183	[illegible]	9,720	9.82	0.37	33.3	7.6
In contact with T19 at 50°C	9	+37.5	2460	349	12.5	3.8	2460	349	3.7	0.2	[illegible]	149	[illegible]	10,100	5.48	0.79	21.9	4.6

TABLE 13

Physical Property Changes in Material 632X59 A–H2
(Cellulose acetate, red)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	$\sigma \pm$	Elongation at Break, %	$\sigma \pm$	Yield Strength, psi	$\sigma \pm$	Elongation at Yield, %	$\sigma \pm$	Proportional Limit, psi	$\sigma \pm$	Modulus of Elasticity, psi	$\sigma \pm$	Work at Yield, ft lbs	$\sigma \pm$	Work to Produce Failure, ft lbs	$\sigma \pm$
Original Control	0	0.0	5580	279	6.6	0.8	5580	279	2.9	0.2	3240	247	378×10^3	21,400	9.23	0.6	25.5	3.67
Room Control	12	0.0	7070	183	5.6	0.5	7070	183	3.4	0.1	4460	393	401×10^3	[illegible]	13.2	0.4	25.2	2.0
50°C Control	12	– 1.8	7540	351	5.9	0.6	7540	351	3.7	0.2	4140	283	374×10^3	14,800	15.8	0.5	23.4	3.4
In contact with OGK at 50°C	12	+19.9	5190	281	7.9	0.9	5190	221	4.1	0.2	2910	252	252×10^3	9,470	12.1	0.7	27.3	3.7
In contact with OIO at 50°C	12	+27.1	4510	487	7.5	1.6	4510	487	4.1	0.1	2810	335	227×10^3	30,100	11.1	1.6	25.7	7.5
In contact with M2 at 50°C	12	+ 6.4	6270	143	6.5	0.5	6270	143	3.9	0.2	3520	332	318×10^3	9,247	13.5	0.9	26.5	1.9
In contact with M7 at 50°C	5	+41.6	3510	311	8.5	1.5	3510	311	3.9	0.2	2080	143	188×10^3	39,800	8.62	1.9	21.8	4.1
In contact with M8 at 50°C	4	+61.4	1750	379	9.3	1.4	1730	379	4.5	0.4	1060	246	104×10^3	16,700	4.87	0.94	11.9	4.0
In contact with M9 at 50°C	5	+42.4	3580	435	8.5	1.6	3580	435	4.2	0.3	2190	212	163×10^3	34,700	8.36	0.44	20.5	2.5
In contact with M15 at 50°C	7	+46.5	2890	159	8.4	1.9	2890	159	3.4	0.2	1890	141	170×10^3	11,300	5.74	0.44	17.4	4.1
In contact with T16 at 50°C	11	+30.7	3550	171	7.5	1.4	3550	171	3.6	0.1	2240	88	190×10^3	11,300	7.75	0.89	19.3	4.9
In contact with T18 at 50°C	12	9.6	5590	536	6.6	1.5	5590	534	3.8	0.2	3350	265	283×10^3	19,500	12.[illegible]	1.4	23.3	4.5
In contact with T19 at 50°C	8	+37.7	3190	592	8.5	1.9	3190	592	3.6	0.2	1940	449	178×10^3	27,500	6.7[illegible]	1.7[illegible]	18.8	2.7

TABLE 14

Physical Property Changes in Material 632X59 E–H
(Cellulose acetate, blue)

	Storage Period months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft lbs	σ ±	Work to Produce Failure, ft lbs	σ ±
Original Control	0	0.0	4480	215	8.0	2.4	4480	215	3.1	1.0	2280	380	282×10^3	29,500	7.2	0.8	25.6	3.19
Room Control	12	− 0.2	4240	58	16.7	3.8	4240	58	3.2	0.8	2950	192	254×10^3	13,900	7.63	0.33	47.6	10.3
50°C Control	12	− 1.4	4560	162	16.5	3.1	4560	162	3.7	0.1	2650	380	245×10^3	8,390	9.61	0.67	52.5	10.6
In contact with GGK at 50°C	5	−19.0	2990	145	14.9	3.5	2990	145	3.8	0.2	4660	226	139×10^3	5,300	6.63	0.37	30.9	7.3
In contact with ORO at 50°C	6	+29.6	2370	416	19.0	3.0	2370	416	3.8	0.3	1670	276	119×10^3	15,900	5.30	0.93	26.1	5.7
In contact with M2 at 50°C	12	+ 6.5	4350	222	16.5	2.3	4350	222	4.1	0.1	2770	195	224×10^3	8,090	10.0	1.0	30.7	6.2
In contact with M7 at 50°C	2	+27.6	2240	250	19.4	2.5	2240	250	3.7	0.2	1220	178	[illegible] $\times 10^3$	18,700	4.93	2.77	25.6	4.0
In contact with M6 at 50°C	2	+52.6	1170	196	31.5	5.4	1170	196	4.7	0.9	987	70	491×10^3	8,090	2.70	0.32	27.9	5.9
In contact with M9 at 50°C	2	+37.9	1020	49	27.5	1.5	1020	49	4.6	0.2	529	140	54×10^3	2,940	2.91	0.11	16.9	1.3
In contact with M15 at 50°C	2	+27.1	2190	163	14.0	3.4	2190	163	3.9	0.2	1260	212	154×10^3	33,000	5.05	1.14	28.5	11.0
In contact with T16 at 50°C	6	+35.2	2050	343	17.8	5.8	2050	343	3.9	0.3	1390	290	117×10^3	20,300	4.00	0.81	26.8	6.2
In contact with T18 at 50°C	12	− 9.1	3040	179	14.7	2.7	3040	179	3.9	0.4	2020	114	174×10^3	4,560	6.90	0.55	31.6	7.1
In contact with T19 at 50°C	4	+32.1	1190	246	20.1	2.9	1190	246	4.8	0.5	—	—	56.7×10^3	20,900	1.47	0.91	17.9	1.7

TABLE 15

Physical Property Changes in Material 632X59 G-MS
(Cellulose acetate, dark amber)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±
Original Control	6	0.0	3730	34	10.6	2.0	3730	34	2.9	0.1	2820	173	229×10^3	29,200
Room Control	12	−0.4	4410	26	8.1	3.1	4410	26	2.7	0.2	3240	141	282×10^3	27,400
50°C Control	12	−3.1	4870	110	6.6	0.4	4870	110	3.4	0.1	3220	355	265×10^3	547
In contact with OGK at 50°C	12	+13.3	3730	197	10.5	1.8	3730	197	3.9	0.1	2350	269	203×10^3	12,500
In contact with OFO at 50°C	12	+17.2	3580	270	12.1	2.2	3580	270	3.5	0.3	2300	133	184×10^3	23,600
In contact with M4 at 50°C	12	+2.5	4750	82	7.8	0.7	4750	82	3.2	0.1	2740	165	261×10^3	10,700
In contact with M7 at 50°C	6	+36.2	1860	202	13.8	1.6	1860	202	5.6	0.6	1120	111	90.9×10^3	9,260
In contact with M8 at 50°C	6	+61.3	1200	229	37.1	15.9	1200	229	6.7	1.4	575	228	32.1×10^3	18,700
In contact with M9 at 50°C	6	+30.2	1500	197	13.2	2.6	1500	238	4.9	0.4	929	115	74.2×10^3	15,000
In contact with M15 at 50°C	6	+32.7	2030	246	13.3	3.7	2030	246	5.4	0.9	1260	187	92.8×10^3	16,900
In contact with T16 at 50°C	12	+21.0	3290	245	11.4	2.3	3290	248	4.1	0.2	1950	255	165×10^3	13,300
In contact with T18 at 50°C	12	+4.4	4800	57	9.9	0.9	4800	57	5.5	0.3	3020	179	267×10^3	18,430
In contact with T19 at 50°C	12	−26.8	2180	356	12.5	1.2	2180	384	4.1	0.1	1350	247	115×10^3	23,400

TABLE 16

Physical Property Changes in Material 632X59 FH
(Cellulose acetate, orange pink)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±
Original Control	0	0.0	4070	93	9.2	1.3	4070	93	2.9	0.0	2830	135	259×10^3	10,200
Room Control	12	+ 0.1	5040	78	15.9	4.1	5040	78	3.3	0.3	3480	257	285×10^3	26,100
50°C Control	12	− 0.5	5460	80	13.9	3.6	5460	80	3.5	0.3	3610	232	270×10^3	42,600
In contact with OGK at 50°C	12	+25.6	3170	303	13.2	5.0	3170	303	4.0	0.3	1980	279	167×10^3	21,100
In contact with O10 at 50°C	10	+36.5	2280	581	16.1	3.2	2280	581	3.6	0.2	1400	366	133×10^3	35,900
In contact with M2 at 50°C	12	+ 7.8	4650	117	10.8	2.2	4650	127	3.8	0.1	3040	112	237×10^3	17,800
In contact with M7 at 50°C	5	+46.8	1270	131	19.1	3.5	1270	131	4.1	0.3	800	272	66.6×10^3	12,911
In contact with M8 at 50°C	4	+69.5	704	251	33.1	3.4	704	551	33.1	3.4	374	169	22×10^3	12,700
In contact with M9 at 50°C	5	+46.4	1440	286	15.0	6.0	1440	286	3.9	0.4	899	171	71.9×10^3	12,900
In contact with M15 at 50°C	5	+36.7	1030	154	22.6	4.0	1030	154	4.6	0.4	630	108	49.7×10^3	11,200
In contact with T16 at 50°C	8	+35.2	1760	242	15.2	4.1	1760	242	3.8	0.3	1130	288	9.82×10^3	2,240
In contact with T18 at 50°C	12	+ 9.5	3370	218	8.1	1.0	3370	218	3.7	1.0	2160	152	175×10^3	16,500
In contact with T19 at 50°C	5	+41.5	1270	91	19.9	2.6	1270	91	4.5	2.6	787	78	62.6×10^3	5,100

TABLE 17

Physical Property Changes in C.A.B. Corp. A

	Storage Period, months	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, psi	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, ft lbs	σ	Work to Produce Failure, ft lbs	σ	Impact Strength, ft lbs, (Clean Breaks)	σ
Room Control	3	− 0.465	5450	472	3830	352	3.95	0.18	26.8	11.5	253 × 10³	7,999	32.3	5.5	94.9	38.0	0.62 (all)	0.72
50°C Control	5	− 0.133	5850	201	4250	379	4.34	0.25	24.2	16.9	299 × 10³	13,068	14.6	3.6	77.9	65.9	0.64 (all)	0.93
O8D at 50°C	5	+27.035	3143	367	1940	262	4.25	0.19	16.8	6.4	147 × 10³	18,260	7.76	1.8	37.6	16.4	.90 (5)	1.60
OGK at 50°C	5	+21.471	3360	423	2040	349	3.96	0.45	16.0	8.6	169 × 10³	36,908	7.61	1.39	34.9	19.3	3.10 (7)	2.4
M2 at 50°C	2	+ 3.563	5230	154	3070	330	4.26	0.20	27.8	14.0	253 × 10³	32,632	13.2	4.8	105	50.0	1.29 (all)	1.54
M7 at 50°C	5	+25.802	3500	384	2210	354	4.03	0.21	19.3	9.3	174 × 10³	37,798	8.11	1.17	45.6	23.1	0.46 (8)	0.50
M8 at 50°C	1	+29.639	1030	584	643	330	5.05	1.57	25.6	17.2	45 × 10³	27,365	3.07	2.34	15.6	9.7		
M9 at 50°C	2	+ 3.153					Specimens not tested. Too much powder mounted on surface											
M13 at 50°C	1	−18.964					Specimens not tested. Too much powder mounted on surface											
T16 at 50°C	5	+26.915	2970	431	1950	325	4.16	0.27	20.6	10.8	234 × 10³	16,087	6.86	1.06	37.9	15.9	4.62 (1)	
T18 at 50°C	5	+ 8.621	4980	631	3270	156	4.41	0.12	30.3	15.8	273 × 10³	32,807	12.7	1.8	102.	44.	1.17 (all)	0.95
T19 at 50°C	1	+17.396	2540	383	1530	286	3.53	0.60	8.96	1.87	127 × 10³	21,651	4.96	1.44	14.1	9.3	2.34 (3)	

TABLE 10

Physical Property Changes in C.A.2. Comp B

	Storage Period, months	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, psi	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, ft lbs	σ	Work to Produce Failure, ft lbs	σ	Impact Strength ft lbs, (Clean Breaks)	σ
Room Control	5	−0.035	5762	125	2229	99	2.97	0.14	13.2	4.3	246 × 10³	3,495	6.61	0.29	36.1	12.5	5.56 (5)	0.66
90°C Control	5	−2.049	3956	46	2242	103	3.41	0.11	8.99	1.9	227 × 10³	11,302	7.79	0.49	25.3	5.5	5.53 (all)	0.87
with OGK	5	−24.457	1326	187	798	178	2.39	0.35	3.26	0.56	104 × 10³	6,009	1.85	0.39	2.75	0.69		
with OIO	5	+31.874	882	230	494	136	3.77	[illegible]	4.79	1.07	56 × 10³	16,955	1.99	0.45	2.79	0.27		
with M2	5	+6.3[illegible]	2960	50	1700	88	3.48	0.14	10.3	3.5	269 × 10³	7,771	5.97	0.40	22.7	8.1	9.39 (5)	0.52
with M7	2	+25.950	90.6	136	645	107	5.31	0.01	4.0	[illegible]	56 × 10³	16,474	1.55	0.20	2.31	0.47	7.95 (2)	
with M8	2 wks	+22.459	Beyond testing															
with M9	1	+25.713	Beyond testing															
with M15	2 wks	+14.543	Beyond testing															
with T15	3	+25.130	525	109	276	[illegible]	3.27	1.29	4.53	2.37	30 × 10³	12,213	1.11	0.33	1.47	0.62		
with T18	5	+10.225	2609	171	1396	105	3.48	0.14	10.6	2.9	154 × 10³	17,295	5.36	2.96	25.5	6.8	6.29 (1)	
with T19	1	+24.049	No other tests															

TABLE 19

Physical Property Changes in C.A.B. Comp C

	Storage Period, months	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, psi	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, ft-lbs	σ	Work to Produce Failure, ft-lbs	σ	Impact Strength, ft-lbs	σ
Room Control	5	−0.038	6499	266	5460	301	4.48	1.2	9.2	2.1	309 × 10³	21,790	16.5	1.4	40.9	10.4	0.45	0.17
38°C Control	5	−0.073	6270	221	4020	250	4.6	0.12	10.2	4.2	280 × 10³	11,525	16.6	3.3	45.5	18.0	0.28	0.17
with OGR	5	+11.497	3090	348	1750	195	4.12	0.39	7.52	1.22	151 × 10³	26,940	7.27	1.1	15.1	2.4	2.17	2.56
with O80	5	+23.567	2040	343	1190	182	3.8	0.26	5.26	2.92	116 × 10³	21,563	4.24	0.76	7.45	1.25	0.93	0.57
with M2	5	+3.485	5280	93	3410	236	3.99	2.9	8.47	1.06	201 × 10³	9,464	12.6	2.5	31.9	7.0	0.35	0.15
with T15	5	+23.424															1.47	(1 Clean Break)
with T18	5	+6.863	4650	1.9	3130	36	3.95	0.21	8.57	0.68	293 × 10³	10,196	12.5	1.1	29.7	2.5	0.33	0.10
with T19	1	+19.062																
with 67	2	+15.422																
with 48	2 wks	+18.116																
with 86	2 wks	+15.332																
with M15	2 wks	+12.507																

TABLE 28

Physical Property Changes in E.C. 1046-72-2, Item 8*

	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, %	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, ft lbs	σ	Work to Produce Failure, ft lbs	σ	Impact Strength, ft lbs, (Breaks)	σ
Room Temp	− 0.151	4130	62	2398	306	3.47	0.18	6.56	0.35	240×10^3	9,675	8.49	0.44	18.5	1.1	3.90 (11)	1.44
50°C Control	− 0.346	3904	21	2286	52	4.31	0.22	5.83	0.36	210×10^3	14,145	10.6	0.6	15.7	1.6	3.52 (7)	1.04
with OGK	+12.467	2540	155	1280	83	4.77	0.36	6.95	0.40	132×10^3	12,416	7.23	0.70	11.0	1.2	3.22 (2)	0.56
with OKO	+16.730	2040	99	1110	35	4.84	0.41	6.97	0.98	117×10^3	5,999	6.51	0.43	9.94	1.15	3.26 (1)	
with M2	+ 4.453	3576	55	1979	138	4.28	0.16	5.22	0.25	180×10^3	3,866	9.81	0.49	13.0	1.1	2.69 (5)	0.18
with M7	+15.456	2670	104	1250	96	5.27	0.58	7.55	2.71	201×10^3	9,917	7.57	1.16	12.8	3.9	2.83 (6)	0.43
with M8	+22.826	1270	32	554	123	7.22	0.41	8.85	3.0	61×10^3	3,696	5.90	0.42	7.33	0.42		
with M9	+16.372	1650	81	966	51	6.48	0.73	8.54	1.45	80.8×10^3	4,569	7.09	1.17	9.86	1.65	3.30 (2)	
with M15	+16.683	3900	46	1130	43	4.95	0.30	6.79	0.87	304×10^3	6,472	6.25	0.95	9.26	1.06	3.47 (11)	0.57
with T16	+15.825	1890	224	1000	97	4.52	0.48	6.15	0.64	185×10^3	25,232	5.20	0.31	7.74	0.26	3.54 (3)	
with T18	+ 5.625	3110	73	1570	84	4.81	0.31	5.16	0.53	176×10^3	12,855	7.64	0.56	19.7	1.3	3.15 (2)	0.19
with T19	+18.172	1400	79	825	46	5.56	0.38	7.44	9.48	72.9×10^3	6,396	3.99	0.44	7.61	0.73	3.45 (2)	

*Storage period, 12 months

TABLE 21

Physical Property Changes in E.C. 1048-92-3*

	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, %	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, in-lbs	σ	Work to Produce Failure, in-lbs	σ	Impact Strength, ft-lbs	σ
Room Control	−0.291	6920	527	4470	598	3.65	0.11	6.65	1.17	365 × 10³	47,658	24.8	1.0	28.5	4.1	2.23	0.34
56°C Control	−0.452	8230	458	3600	301	3.85	0.29	4.98	1.27	375 × 10³	33,262	27.2	1.8	23.9	6.3	1.81	0.29
with OGK	+11.951	4570	306	2846	143	3.78	0.58	4.57	0.71	257 × 10³	38,720	[illegible]	1.3	15.6	2.3	3.29	3.04
with O60	+15.218	3850	275	2320	92	3.61	3.26	4.57	0.93	228 × 10³	31,921	6.54	0.70	11.7	2.4	2.89	[illegible]
with M2	+2.543	5990	385	3270	238	3.78	2.19	4.15	1.34	294 × 10³	32,291	22.4	1.1	15.6	0.9	2.35	[illegible]
with M7	+14.196	4140	261	2770	297	4.41	2.49	3.85	0.73	232 × 10³	23,415	8.45	1.33	9.96	2.22	3.05	0.61
with M8	+23.102	2722	216	1650	175	4.22	8.46	3.70	0.79	145 × 10³	17,199	4.96	3.34	5.06	1.55	3.13	0.35
with M9	+17.163	3990	152	2123	104	5.76	2.51	4.21	0.51	233 × 10³	7,089	8.79	1.29	[illegible]	1.7	3.11	0.90
with M15	+14.227	3540	422	214	234	5.69	3.21	4.35	0.67	306 × 10³	25,151	4.54	1.45	15.5	1.1	3.72	0.92
with T14	+12.373	3350	423	1520	157	3.42	3.23	4.19	1.45	201 × 10³	19,657	[illegible]	2.71	8.77	3.46	3.84	0.40
with T18	+3.426	9910	349	347	345	3.79	3.54	4.23	−0.72	308 × 10³	35,232	23.7	2.6	15.4	3.3	2.7	0.51
with T19	+15.458	5730	311	1970	149	3.64	3.48	4.44	0.97	198 × 10³	24,875	7.6	0.92	19.3	2.1	3.16	[illegible]

*Storage period 12 months

TABLE 22

Physical Property Changes in E. C. 1048–92–4, Item D

	Storage Period, months	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, %	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, ft lbs	σ	Work to Produce Failure, ft lbs	σ	Impact Strength, ft lbs	σ
Room Control	12	+ 8.824	5460	156	3270	343	4.39	0.68	6.13	1.24	293 × 10³	19,791	15.0	2.9	23.1	5.9	3.14	0.9
50°C Control	12	− 9.378	5950	73	3630	138	4.74	0.27	5.20	0.23	306 × 10³	15,364	17.6	1.6	20.1	5.4	2.68	0.7
with OGK	7	+12.817	3310	156	1970	109	5.58	0.44	5.58	0.44	193 × 10³	42,310	11.5	1.1	11.5	1.1	3.4	0.2
with OIO	7	+18.793	3020	79	1710	120	6.07	0.62	6.07	0.62	141 × 10³	6,987	11.4	1.7	11.4	1.7	2.63	0.4
with M2	12	+ 5.173	4680	61	2670	245	3.87	0.22	4.25	0.42	249 × 10³	10,249	10.9	1.2	12.2	1.4	2.26	0.6
with M7	12	+18.970	2610	90	1500	91	4.43	0.34	4.57	0.49	139 × 10³	8,732	7.26	0.36	8.20	1.1	2.22	0.5
with M8	12	+25.607	1623	62	834	65	4.65	0.46	4.99	0.47	88.5 × 10³	4,964	4.75	0.66	5.24	2.35	No clean breaks	
with M9	12	+22.194	2440	41	1390	133	4.73	0.40	5.18	0.58	131 × 10³	5,612	7.34	0.83	8.33	3.99	No clean breaks	
with M12	12	−22.026	2550	57	1310	87	4.28	0.57	4.54	0.79	152 × 10³	3,609	6.77	1.29	7.22	1.61	No clean breaks	
with T16	12	+21.010	2350	82	1210	98	4.14	0.61	4.99	0.77	135 × 10³	5,419	6.04	1.23	6.44	1.52	4.43	2 spec.
with T18	12	+ 6.818	3555	62	1900	125	2.91	0.21	3.67	0.18	213 × 10³	20,245	7.38	0.42	7.85	0.52	2.35	1 spec.
with T19	12	+21.219	2100	49	1150	105	4.68	0.33	5.16	0.42	113 × 10³	3,517	6.22	0.68	6.95	0.89	3.23	1 spec.

TABLE 23

Physical Property Changes in E.C. 1048-92-5, from E*

	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, %	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, ft lbs	σ	Work to Produce Failure, ft lbs	σ	Impact Strength, ft lbs	σ
Room Control	+0.081	5710	333	3623	190	4.72	0.62	4.92	0.71	306×10^3	15,459	17.2	3.1	18.2	3.2	2.28	0.51
90°C Control	−0.139	5820		3420	274	4.30	0.79	4.46	0.73	297×10^3	28,873	15.6	4.9	17.4	4.4	2.59	0.51
with OIO	+15.789	3430	66	2130	99	4.55	0.90	5.22	0.56	177×10^3	7,772	9.6	2.28	10.9	1.9	2.69	0.57
with OGK	+8.599	3720	267	2160	93	4.21	0.96	4.69	0.91	194×10^3	3,398	9.7	3.19	11.3	3.3	2.97	0.94
with MC	+3.230	4820	144	2899	262	4.94	0.43	4.56	0.57	263×10^3	6,183	11.7	1.3	13.7	2.2	2.71	0.6
with M7	+10.901	3660	174	2150	270	4.05	0.31	4.68	0.25	204×10^3	13,999	9.2	0.58	10.5	0.4	3.51	1.34 (5 clean breaks)
with M8	+15.394	2940	93	1780	84	4.34	0.47	5.12	0.71	156×10^3	9,145	8.0	1.1	9.95	1.5	3.09	(3 clean breaks)
with M9	+12.073	3342	172	1797	169	4.42	0.49	5.12	0.39	298×10^3	14,734	9.3	1.7	11.0	1.7	3.80	(2 clean breaks)
with M15	+13.244	3580	129	1920	125	3.84	0.40	4.57	0.39	216×10^3	18,297	8.9	1.2	10.0	1.4	No clean breaks	
with T16	+9.727	3620	193	2140	183	4.43	0.41	4.96	0.45	198×10^3	8,142	10.2	1.8	11.	1.9	3.12	(2 clean breaks)
with T18	+4.249*	4750	195	2900	136	4.20	0.55	4.38	0.64	269×10^3	8,762	12.5	2.4	13.5	1.4	3.19	0.96
with T19	+11.369	3378	133	2120	303	4.08	0.53	4.49	0.59	179×10^3	12,560	8.2	1.4	9.6	1.6	3.44	0.6

*Storage period, 12 months

TABLE 24

Physical Property Changes in E.C. 1348-92-1, from A*

	Change in Weight, %	Max. Tensile, psi	σ	Prop. Limit psi	σ	Elong. at Yield, %	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, ft-lbs	σ	Work to Produce Failure, ft-lbs	σ	Impact Strength, ft-lbs	σ
Room Control	− 0.430	6540	99	3460	106	3.69	0.24	4.78	0.73	357×10^3	23,662	[illegible]	1.4	20.3	2.1	2.73	0.31
50°C Control	− 0.196	6750	196	3366	140	4.03	0.17	4.87	0.37	315×10^3	11,917	15.9	0.7	20.6	2.0	2.54	0.47
with OGX	+12.124	4430	97	2140	131	4.2	0.38	5.55	0.68	211×10^3	4,979	11.2	1.2	15.4	2.4	3.62	1.0
with OFO	+ 8.290	4000	106	2170	155	[illegible]	0.28	5.3	0.4	222×10^3	29,777	10.4	1.7	14.5	1.8	3.99	0.77
with M2	+ 2.120	6120	56	3000	185	[illegible]	0.19	4.7	0.5	291×10^3	7,842	13.9	1.0	17.8	1.5	3.95	0.41
with M7	+ 8.855	4610	87	2502	184	4.02	0.35	5.09	0.54	215×10^3	2,574	10.9	1.2	15.0	2.3	3.79	0.63
with M8	+18.749	2720	92	1430	64	3.3	0.25	3.96	0.4	145×10^3	6,833	5.59	0.5	6.61	0.8	No clean breaks	
with M9	+13.394	3750	145	2012	86	3.64	[illegible]	4.32	0.16	186×10^3	10,985	7.85	0.42	10.3	0.6	3.69	0.64
with M25	+12.177	4066	130	2030	126	5.67	0.19	4.55	0.3	199×10^3	6,636	8.44	0.77	11.4	1.4	3.65	0.99
with T16	+ 9.403	4090	84	1980	85	3.72	0.25	4.45	0.42	[illegible]	2,735	8.06	0.95	[illegible]	1.4	4.24	0.33
with T18	+ 2.653	6150	135	2864	197	3.84	0.11	4.53	0.17	297×10^3	5,899	13.7	1.2	17.2	1.0	3.36	0.6
with T19	+11.715	3770	47	1980	60	3.73	0.19	4.55	0.25	183×10^3	5,500	6.09	0.5	12.6	0.8	3.61	0.4

*Storage period, 12 months

TABLE 25

Cellulose Acetate (Tenite I) Formulations*

Designation	Color	Composition, pbw	
632X59–H–MS	Pink	E–400–25	100 parts
		DEP	30
		DMP	10
		TPP	20
632X59–A–H2	Red	E–394–30	100
		DMP	10.8
		DEP	24.3
632X59–B–H2	Colorless	E–400–25	100
		DMP	10.8
		DEP	24.3
632X59–C–MS	Amber	E–394–30	100
		DMP	14.4
		DEP	33.7
632X59–D–MS	Green	E–400–25	100
		DMP	14.4
		DEP	33.7
632X59–FH	Orange Pink	E–400–25	100
		DEP	22.8
		DMP	7.6
		TPP	15.2
632X59–G–MS	Dark Amber	E–394–30	100
		DEP	30
		DMP	10
		TPP	20
632X59–E–M	Blue	E–394–30	100
		DEP	22.8
		DMP	7.6
		TPP	15.2

*All formulations were obtained from Eastman Kodak Company.

TABLE 26

Ethyl Cellulose (Hercocel E) Compositions

Designation	Color	Composition, pbw	
E.C. 1048-92-4	Clear	Ethyl cellulose K-70	80 parts
		Dow 276V2	14
		Tricresyl phosphate	6
		Diamyl phenol	2
E.C. 1048-92-3		Ethyl cellulose K-70	90
		Dow 276V2	7
		Tricresyl phosphate	3
		Diamyl phenol	2
E.C. 1048-92-2		Ethyl cellulose K-70	80
		Dow 276V2	14
		Triphenyl phosphate	6
		Diamyl phenol	2
E.C. 1048-92-1		Ethyl cellulose K-70	90
		Dow 276V2	7
		Triphenyl phosphate	3
		Diamyl phenol	2
E.C. 1048-92-5		Ethyl cellulose K-70	84
		Dow P-1099	8
		Mineral oil	8
		Diamyl phenol	2

TABLE 27

Cellulose Acetate Butyrate (Tenite II) Compositions*

Designation	Composition, pbw	
T.E. 64621-1 (Compound A)	Cellulose acetate butyrate	100 parts
	Dibutyl sebacate	5
T.E. 64622-1 (Compound B)	Cellulose acetate butyrate	100
	Dibutyl sebacate	14.5
T.E. 64623-1 (Compound C)	Cellulose acetate butyrate	100
	Triphenyl phosphate	6

*All of the compositions listed have identical acetyl, butyl, and hydroxy contents.

Section 3

EPOXY RESINS

One useful property of epoxy resins is the ability to transform readily from the liquid state to tough, hard thermoset materials with low shrinkage. This hardening is accomplished by the addition of a chemically active reagent known as a curing agent (also, a hardener, activator, or catalyst). Some curing agents promote cure by catalytic action, others participate directly in the reaction and become a part of the final polymer. Depending upon the particular curing agent used, cure of the epoxy resin may require external application of heat. The principal types of curing agents are primary and secondary amines, acid anhydrides, dibasic acids, and resins, the last category including phenol-formaldehyde, urea-formaldehyde, the polyamides, and melamine-formaldehyde.

A survey of available data on the compatibility of epoxy resins with explosives and propellants reveals the following information:

1. The reactivity of explosives caused by contact with epoxy resins is dependent upon the hardener or curing agent utilized for cure.

2. Epoxy resins cured with aliphatic amines cause a majority of explosives and propellants to be excessively reactive.

3. Explosives and propellants when stored in direct contact with epoxy resins, that were cured with acid anhydrides, alkaline or phenolic resins, exhibit litt[1] or no reactivity.

4. Epoxy resins cured with polyamides, such as Versamide, cause some explosives to be excessively reactive.

TABLE 28

Vacuum Stability Test Results for Epoxies

Polymer	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Araldite AN-102 with 951 hardener	M-2	90	0.61	2.48	9.70	6.61	Excessive	52-M2-84
Araldite AN-111	Composition B	100	0.27	0.26	0.28	0.00	None	54-M2-32
Araldite AN-111	Tetryl	100	0.27	0.21	0.34	0.00	None	54-M2-32
Araldite AN-111	T8	90	0.37	2.20	11^+	8.43	Excessive	51-H1-2419
Araldite-CN-503	Black powder	100	0.02	0.42	0.25	0.00	None	55-H1-1112
with 951 hardener	Composition B	100				11^+ 16 hrs	Excessive	55-H1-1112
with 951 hardener	M-10	90	0.00	2.26	1.90	0.00	None	55-H1-1112
with HN-901	T-19	90	0.07	3.47	3.34	0.00	None	56-M2-14
Araldite resin 33/900 with polyamide PA 115	Composition B	100	0.19	0.28	11.00	10.53 16 hrs	Excessive	55-M2-41
Araldite 20005	Composition B	100	0.38	0.28	0.57	0.00	None	55-M2-41
Araldite F with phthalic anhydride tertiary amine	Composition B	100	0.31	0.28	0.82	0.23	Negligible	55-M2-41
Araldite F with methylene dianiline	Composition B	100	0.36	0.28	0.36	0.00	None	55-M2-41
Araldite AN-100 with HN-901	T-19	90	0.14	3.01	11^+ 40 hrs	7.85^+ 40 hrs	Excessive	56-M2-14
Araldite E-107	T-19	90	0.08	3.04	3.45	0.33	Negligible	54-M1-1740

TABLE 28 (Cont)

Polymer	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Armstrong A-1	JPN	50	0.91	2.57	11.00+	7.58+	Excessive	53-M2-4
	MRP	50	0.91	1.99	11.00+	8.10+	Excessive	53-M2-4
	T-2	50	0.57	3.54	11.00+	6.89+	Excessive	53-M2-4
	T-8	50	0.91	2.13	11.00+	7.96+	Excessive	53-M2-4
Armstrong A-3 (Activator A)	M-2	90	0.31	2.48	5.56	2.77	Very slight	52-M2-84
Armstrong A-4 Hardener A	RDX	100	0.13	0.31	5.61	5.17	Excessive	52-H1-632
Armstrong A-6 with hardener E	Composition B	100	0.51	0.20	5.48	4.77	Moderate	55-M2-33
with hardener A	Composition B	100	0.40	0.20	6.13	5.53	Excessive	55-M2-33
with hardener E	Cyclotol 75/25	100	0.62	0.34	4.63	3.67	Moderate	56-M2-10
with hardener E	Tetryl	100	0.51	0.45	1.56	0.60	Negligible	55-M2-33
with hardener A	Tetryl	100	0.40	0.39	2.32	1.53	Very slight	55-M2-33
Armstrong C-4	Cyclotol 75/25	100	0.16	0.26	11.00+ 15 hrs	10.58+ 16 hrs	Excessive	55-M2-38
Armstrong N-111	Fuze powder	100	0.45	0.35	0.40	0.00	None	54-M2-14
Bakelite BR-18795 with BR-18793	Black powder	100	0.32	0.52	0.88	0.04	Negligible	53-H1-499
	Composition A-3	100	0.34	0.41	0.43	0.09	None	53-M2-76
	Composition B	100						54-H1-2763
(cured)	Composition C-3	100	0.32	1.29	11.00+	10.39+	Excessive	53-H1-496
(uncured)	Composition C-3	100	0.09	1.29	11.00+	8.62	Excessive	53-H1-496
	Cyclotol 75/25	100	0.35	0.31	1.26	0.61	Negligible	53-M2-76
(cured)	H-6 Navy Explosive	100	0.32	0.13	11.00+	10.55	Excessive	53-H1-496
(uncured)		100	0.09	0.13	11.00+	10.78	Excessive	53-H1-496
(cured)	MOX-2B	100	0.32	0.20	3.96	3.44	Moderate	53-H1-496
(uncured)	MOX-2B	100	0.09	0.20	2.35	2.06	Very slight	53-H1-496
Bakelite-BR-18795 with BR-18793	RDX-Hystine	100	0.34	0.35	0.55	0.00	None	53-M2-76
(cured)	Tetryl	100	0.32	0.41	3.13	2.40	Very slight	53-H1-496
(uncured)	Tetryl	100	0.09	0.41	—	—		53-H1-496

TABLE 28 (Cont)

Polymer	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Bakelite BR-18794 with BKR 18807	Baracol	100	0.37	0.14	0.48	0.00	None	53-M2-13
Bondmaster No. 698	Composition B	100	0.66	0.35	0.71	0.00	None	56-M2-40
Bondmaster No. 698 coated	Composition B	100	0.80	0.11	0.86	0.00	None	56-M2-40
Chemotex No. 823	Composition B	100	0.71	0.30	3.52	2.51	Slight	53-M2-67
Chemotex No. 825	Composition B	100	0.52	0.27	11+	10.21	Excessive	53-M2-67
Ciba No. 502 with hardener 951	OIO	90	0.09	0.73	11+	10.18	Excessive	53-M2-90
Cycleweld C-14	Composition A-3	100	0.36	0.37	1.21	0.48	Negligible	53-M2-82
	Baracol	100	0.30	0.14	3.55	3.12	Moderate	53-M2-13
	Composition B	100	0.19	0.25	11+	10.56	Excessive	56-M2-34
	Black powder	100	0.19	0.63	0.53	0.00	None	56-M2-34
	Barium Nitrate	100	0.26	0.08	0.05	0.00	None	55-M2-55
	Bullseye No. 2 Flash Powder	90	0.32	1.94	11+-16 hrs	7.74	Excessive	52-HI-2023
	HBX-6	100	0.22	0.67	11+ 16 hrs	10.11	Excessive	56-M2-4
	IM-142 Incendiary Composition	100	0.22	0.36	0.17	0.00	None	53-M2-99
	IMR-4879 Propellant	100	0.22	2.93	2.34	0.00	None	53-M2-99
	M-8	90	0.08	4.13	11+	6.79+	Excessive	57-TM2-15
	M-9	90	0.08	5.72	11+	5.28+	Excessive	57-TM2-15
	M-10	100	0.19	2.36	2.13	0.00	None	56-M2-34
	Pentolite 50/50	100	0.36	2.06	11+	8.58+	Excessive	53-M2-82
Inert Mat.	Silicon	100	0.26	0.08	0.05	0.00	None	55-M2-55
	TNT	100	0.26	0.08	11+	10.66+	Excessive	56-M2-34
	Tetryl	100	0.26	0.40	8.41	7.75	Excessive	56-M2-34
	Tetranitro-carbazole	100	0.26	0.25	0.26	0.00	None	55-M2-55
Inert Mat.	Zirconium-hydride	100	0.26	0.41	0.26	0.00	None	55-M2-55
Epon VI with hardener A	Composition B	100	0.13	0.29	11+	10.58+	Excessive	55-HI-2116
with hardener 2	Composition B	100	0.12	0.26	3.55	3.17	Moderate	55-HI-2372
with A	T-19	90	0.40	3.04	11+	7.56+	Excessive	54-HI-1740
with A	TNT	100	0.54	0.14	2.12	1.44	Very Slight	54-M2-45
with A	Tetryl	100	0.54	0.16	0.96	0.26	Negligible	54-M2-45
with A	Tetrytol 65/35	100	0.54	1.48	5.45	3.43	Moderate	54-M2-45
Shell No. 422	M-6	100	1.24	1.49	1.74	0.00	None	55-M2-44

TABLE 28 (Cont)

Polymer	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Experimental Epon stabilized material	M-10	100	1.24	6.85	7.56	0.00	None	55-M2-44
Epon 828								
with C	Black powder	100	0.08	0.42	0.24	0.00	None	55-H1-1122
with A	Black powder	100	2.48	0.42	0.32	0.00	None	55-H1-1122
with D	Composition B	100	0.18	0.18	11^+	10.64^+	Excessive	55-M2-5
with Cl	Composition B	100	0.17	0.18	0.32	0.00	None	56-M2-15
with A	Composition B	100	0.48	0.20	11^+	10.32^+	Excessive	VS4-32
with Z	Composition B	100	0.01	0.18	2.16	1.97	Very slight	56-H1-139
with diethylene triamine	Flash Composition	100	0.18	0.11	2.63	2.34	Slight	55-H-620
with A	HBX-6	100	0.57	0.64	11^+	10.79^+	Excessive	55-M2-49
with Cl	HBX-6	100	0.26	0.76	0.54	0.00	None	56-M2-70
with Versamid 125	HBX-6	100	0.37	0.14	11^+	10.49	Excessive	57-H1-772
with Versamid 115	HBX-6	100	0.37	0.00	11	10.63	Excessive	57-H1-772
with Z	HBX-6	100	0.01	0.24	1.04	0.79	Negligible	56-H1-139
with A	M-10	90	0.43	2.26	2.26	0.00	None	55-H1-1122
with Cl	M-10	90	0.06	2.26	2.23	0.00	None	55-H1-1122
with D	OIO	90	0.09	0.57	11^+	10.34^+	Excessive	54-M2-26
with Z	RDX	100	0.17	0.61	0.51	0.00	None	57-TM2-18
with A	TNT	100	0.54	0.22	5.36	4.60	Moderate	56-M2-19
with Cl	TNT	100	0.05	0.22	0.24	0.00	None	56-M2-19
with A	Tetryl	100	0.48	0.5[illegible]	0.43	1.57	Very slight	56-M2-19
with Cl	Tetryl	100	0.05	0.43	0.36	0.00	None	56-M2-19
with Thiokol LP-3	Tetryl	100	0.34	0.23	2.43	1.86	Very slight	54-M2-47
with fiberglas	T-131	90	0.16	0.94	5.59	4.49	Moderate	55-H1-1115
with Cycleweld + LP-3	Yellow flare	100	0.07	0.47	0.19	0.00	None	56-H1-938
Hysol No. 6000	JPN	50	0.17	2.51	1.91	0.00	None	53-M2-4

TABLE 28 (Cont)

Polymer	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Hysol No. 6000	MRP	50	0.17	1.99	1.59	0.00	None	53-M2-4
	T-2	50	0.17	5.37	4.45	0.00	None	53-M2-4
	T-8	50	0.17	2.13	1.58	0.00	None	53-M2-4
Hysol No. 6020								
(cast) with C	HBX-6	100	0.01	0.66	11+	10.33+	Excessive	56-M2-60
(film) with C	HBX-6	100	0.27	0.66	2.96	2.03	Slight	56-M2-60
with C	Pentolite	100	0.82	1.56	5.50	3.12	Moderate	54-M2-48
with C	Swiss Prop	90	0.11	0.72	11+	10.17+	Excessive	52-M2-174
with C	Tetryl	100	0.82	0.17	3.91	2.92	Slight	54-M2-48
(cast) with C	Tetryl	100	0.01	0.37	11+	10.62+	Excessive	56-M2-60
MF-876 Epoxy with diethylene triamine	Amatol	100	0.72	0.41	5.53	4.40	Moderate	56-M2-12
	M-7	90	0.60	2.13	6.69	3.96	Moderate	56-M2-12
	M-15	90	0.60	1.98	8.97	6.39	Excessive	56-M2-12
	Tetryl	100	0.72	0.45	0.96	0.00	None	56-M2-12
Bondmaster No. M-620	Composition B	100	0.38	0.38	0.49	0.00	None	56-M2-54

TABLE 29

Effects of Storage on the Physical Properties of Epoxies

Polymer	Explosive	Storage, Weeks	Temperature, °C	Effects on the Polymer	Picatinny Report No.
Araldite-AN-102 with 951 hardener	M-2	8	50	Turned yellow	52-M2-84
Araldite AN-111	Composition B	15	76	No effect	54-M2-32
	Tetryl	15	76	Roughened surface	54-M2-32
Armstrong A-1	JPN	26	50	Slight adherence	54-M2-32
	MRP	26	50	No effect	54-M2-32
	T-2	26	50	No effect	54-M2-32
	T-8	26	50	Slight adherence	54-M2-32
Armstrong A-3	M-2	8	50	No effect	52-M2-84
Bakelite-BR-18794 with BRR-18807	Baratol	8	76	No effect	53-M2-13
Bondmaster No. No. 698 coated	Composition B	24	71	Darkened slightly	56-M2-40
	Composition B	24	71	Explosive adhered, was etched	56-M2-40
Cycleweld C-14	Baratol	8	76	No effect	53-M2-13
	Black powder	24	76	Darkened slightly	56-M2-34
	M-10	24	76	Darkened slightly	56-M2-34
	TNT	24	76	TNT adhered tenaciously	56-M2-34
	Tetryl	24	76	Darkened	56-M2-34

TABLE 29 (Cont)

Polymer	Explosive	Storage, Weeks	Temperature, °C	Effect on the Polymer	Picatinny Report No.
Epon 828 with Cl	Composition B	24	71	No effect	56-M2-15
with Z	HBX-6	36	71	Turned dark	57-TM2-18
with Z	RDX	36	76	Darkened	57-TM2-18
with A	TNT	36	71	Slight adherence	56-M2-19
with Cl	TNT	36	71		
with A	Tetryl	36	76	Turned darker	56-M2-19
with Cl	Tetryl	36	76		
with spun fiberglas	T-131	24	50	Turned orange	56-M2-23
Hysol No. 6000	JPN	26	50	No effect	53-M2-4
	MRP	26	50	No effect	53-M2-4
	T-2	26	50	No effect	53-M2-4
	T-8	26	50	No effect	53-M2-4
Shell No. 422	M-6	24	76	Darkened	55-M2-44
	M-10	24	76	No effect	55-M2-44

TABLE 30

Percent Change in Weight of Epoxies After Storage

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight Change, Control	% Weight Change, Contact	Picatinny Report No.
Armstrong A-1	JPN	26	50	−0.14	+1.61	53-M2-4
	MRP	26	50	−0.14	+1.20	53-M2-4
	T-2	26	50	−0.14	+1.11	53-M2-4
	T-8	26	50	−0.14	+0.57	53-M2-4
Bondmaster No.	Composition B	24	71	−2.53	−1.89	53-M2-40
No. 698 coated with acid proof Black Paint	Composition B	24	71	−0.79	Explosive adheres after 12 wks, prohibiting further weighing	53-M2-40
Ciba No. 502 hardener 951	OIO	14	50	−4.22	−3.68	53-M2-90
Cycleweld C-14	Black powder	24	76	−0.02	+0.10	56-M2-34
	M-10	24	76	−0.02	−1.12	56-M2-34
	TNT	24	76	−0.02	TNT prohibited weighing	56-M2-34
	Tetryl	24	76	−0.02	+0.46	56-M2-34
Epon 828 with CI	Composition B	24	71	−0.13	−0.09	56-M2-15
with Z	HBX-6	36	71	−0.33	+0.15	57-TM2-18
with Z	RDX	36	76	−0.33	−0.09	57-TM2-18
with A	TNT	36	71	−0.33	−0.24	56-M2-19
with A	Tetryl	36	76	−0.33	−0.34	56-M2-19
with spun fiberglas	T-131	24	50	−0.09	−0.08	56-M2-23

TABLE 30 (Cont)

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight Change, Control	% Weight Change, Contact	Picatinny Report No.
Hysol No. 6000	JPN	26	50	−0.04	+0.70	53-M2-4
	MRP	26	50	−0.04	+0.69	53-M2-4
	T-2	26	50	−0.04	+0.70	53-M2-4
	T-8	26	50	−0.04	+0.37	53-M2-4
Shell No. 422	M-6	24	76	+0.19	+0.22	55-M2-44
	M-10	24	76	+0.19	−0.97	55-M2-44

TABLE 31

100°C Heat Test Results for Epoxies

Material and Weight in Gm	Explosive and Weight in Gm	1st 48 Hrs. Gm	1st 48 Hrs. %	2nd 48 Hrs. Gm	2nd 48 Hrs. %	Explosion in 100 Hrs.	Picatinny Report No.
Armstrong C-4 with J	Cyclotol 75/25						
0.6	0.6	0.0722	6.02	0.0067	0.56	None	55-M2-38
0.6	—	0.0355	5.92	0.0076	1.27	None	55-M2-38
—	0.6	0.0040	0.67	0.0000	0.00	None	55-M2-38
Bakelite BR-18795	Composition A-3						
0.6	0.6	0.0036	0.30	0.0006	0.05	None	53-M2-76
0.6	—	0.0015	0.25	0.0000	0.00	None	53-M2-76
—	0.6	0.0000	0.02	0.0000	0.00	None	53-M2-76
	Cyclotol 75/25						
0.6	0.6	0.0055	0.46	0.0031	0.26	None	53-M2-76
0.6	—	0.0015	0.25	0.0000	0.00	None	53-M2-76
—	0.6	0.0007	0.12	0.0000	0.00	None	53-M2-76
	RDX-Hystine						
0.6	0.6	0.0086	0.72	0.0089	0.74	None	53-M2-76
0.6	—	0.0015	0.25	0.0000	0.00	None	53-M2-76
—	0.6	0.0001	0.02	0.0000	0.00	None	53-M2-76

TABLE 31 (Cont)

Material and Weight in Gm	Explosive and Weight in Gm	1st 48 Hrs. Gm	1st 48 Hrs. %	2nd 48 Hrs. Gm	2nd 48 Hrs. %	Explosion in 100 Hrs.	Picatinny Report No.
Cycleweld C-14	Barium Nitrate						
0.6	0.6	0.0947	0.39	0.0000	0.00	None	55-M2-55
0.6	–	0.0053	0.88	0.0000	0.00	None	55-M2-55
–	0.6	0.0000	0.00	0.0000	0.00	None	55-M2-55
	Primer Mix-FA-70						
0.6	0.6	0.0130	1.08	0.0040	3.34	None	56-H1-140
0.6	–	0.0110	1.83	0.0041	0.68	None	56-H1-140
–	0.6	0.0011	0.18	0.0002	0.03	None	56-H1-140
Epon 828 with diethylene triamine	Lead Azide						
0.6	0.6	0.0093	0.77	0.0000	0.00	None	55-H1-620
0.6	–	0.0040	0.66	0.0000	0.00	None	55-H1-620
–	0.6	0.0065	1.08	0.0000	0.00	None	55-H1-620

TABLE 32

Curing Agents

Commercial Designation	Chemical Compound
C-14B	Diethylene triamine
A (fast reacting)	Diethylene propylamine
Diapi	Diethylamino propylamine
HN-951	Triethylene tetraamine
D	Tri (2-ethyl hexoic acid) salt of tridimethylamino methyl phenol
Cl	Metaphenylene diamine
HN-901	Phthalic anhydride
L (slow reacting)	2,6-diamine pyridine
Z	Aromatic amine mixture

Section 4

ETHYLENES AND FLUOROCARBONS

Included in this section are the polyethylenes, fluorocarbons (Teflon and Kel-F), and chlorosulfonated polyethylene (Hypalon). Because of their chemical inertness, these materials are not affected by contact with explosives and propellants.

Explosives and propellants show little or no reactivity in the presence of these polymers, according to the results of vacuum-stability tests.

TABLE 33

Vacuum Stability Test Results for Ethylenes and Fluorocarbons

Polymeric Material	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
DE No. 3422-Bakelite	JPN	90	0.12	2.36	2.68	0.20	Negligible	53-M2-4
	MRP	90	0.12	1.71	1.82	0.00	None	53-M2-4
	T-2	90	0.12	7.22	7.16	0.00	None	53-M2-4
	T-8	90	0.12	2.04	2.07	0.00	None	53-M2-4
"Ca Plugs"	Tetryl	100	0.13	0.26	0.26	0.00	None	52-M2-21
DYNH-Bakelite	Ammonium Perchlorate	100	0.13	0.21	0.20	0.00	None	54-M2-39
Film-Polyethylene	T-18	90	0.21	5.64	4.77	0.00	None	54-M2-35
Film (chlorinated)	T-18	90	0.23	5.64	5.69	0.00	None	54-M2-35
Film with Pliobond	T-18	90	0.25	5.64	5.88	0.00	None	54-M2-35
Dylan-KPD-190	RDX	120	0.28	0.63	0.68	0.00	None	55-M2-50
	Tetryl	100	0.26	0.39	0.37	0.00	None	56-H1-748
	TNT	100	0.26	0.62	0.51	0.00	None	56-H1-748
Hypalon S-2 (chlorosulfonated)	Fuze Powder	100	0.90	0.36	0.48	0.00	None	53-M2-87
	RDX	100	0.70	0.39	0.01	0.00	None	53-M2-89
	Tetryl	100	0.70	0.28	0.93	0.00	None	53-M2-89
Kel-F	JPN	90	0.19	2.36	2.43	0.00	None	53-M2-4
	MRP	90	0.19	1.71	1.69	0.00	None	53-M2-4
	T-2	90	0.19	7.22	6.97	0.00	None	53-M2-4
	T-8	90	0.18	2.04	2.03	0.00	None	53-M2-4

TABLE 33 (Continued)

Polymeric Material	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Polyethylene–Straight	Black Powder	100	0.17	0.37	0.34	0.00	None	53-M2-18
	K-29 Igniter Mix	100	0.10	0.30	0.29	0.00	None	51-S-17
	Tetryl					0.00	None	52-M2-73
	T-2	90	0.13	7.04	6.45	0.00	None	52-M2-14
	T-6	90	0.10	4.12	3.83	0.00	None	53-H1-592
	C-3	100	0.11	1.10	1.41	0.20	Negligible	133744
	C-4	100	0.07	0.22	0.19	0.00	None	133744
	M9	90	0.34	9.48	10.40	0.58	Negligible	131219
Teflon	JPN	90	0.11	2.36	2.45	0.00	None	53-M2-4
	MRP	90	0.11	1.71	1.61	0.00	None	53-M2-4
	T-2	90	0.11	7.22	7.77	0.00	None	53-M2-4
	T-8	90	0.11	2.04	1.94	0.00	None	53-M2-4
	Aluminum	100	0.08	0.56	0.16	0.00	None	57-TM2-42
	Ammonal	100	0.08	0.36	0.45	0.01	Negligible	57-TM2-42
	DBX	100	0.08	0.49	0.61	0.04	Negligible	57-TM2-42
	HBX	100	0.08	1.38	0.64	0.00	None	57-TM2-42
	Tritonal	100	0.08	0.24	0.22	0.00	None	57-TM2-42

TABLE 34

Percent Change in Weight of Ethylenes and Fluorocarbons After Storage

Polymeric Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	% Weight Change, Control	% Weight Change, Control	Picatinny Report No.
DF No. 3422 Bak.	JPN	26	50	+0.80	+0.40	53-M2-4
	MRP	24	50	+0.80	+0.48	53-M2-4
	T-2	24	50	±0.80	+0.79	53-M2-4
	T-8	24	50	+0.80	+0.67	53-M2-4
"Ca Plugs"	Tetryl	8	76	+0.38	+0.43	52-M2-21
Film Polyethylene	T-18	25	50	+0.17	+0.38	54-M2-35
Film (chlorinated)	T-18	25	50	+0.33	+0.62	54-M2-35
Kel-F	JPN	26	50	0.00	0.00	53-M2-4
	MRP	24	50	0.00	−0.03	53-M2-4
	T-2	24	50	0.00	−0.03	53-M2-4
	T-8	24	50	0.00	.00	53-M2-4
Polyethylene-Straight	T-2	54	50	0.32	2.44	52-M2-14
Teflon	JPN	26	50	0.00	0.00	53-M2-4
	MRP	24	50	0.00	−0.03	53-M2-4
	T-2	24	50	0.00	0.00	53-M2-4
	T-8	24	50	0.00	0.00	53-M2-4
	Aluminum	3	71	−0.03	−0.04	57-TM2-42
	Ammonal	3	71	−0.03	−0.03	57-TM2-42
	DBX	3	71	−0.03	−0.02	57-TM2-42
	HBX	3	71	−0.03	−0.03	57-TM2-42
	Tritonal	3	71	−0.03	−0.03	57-TM2-42

TABLE 35

Effects of Storage on the Appearance of Ethylenes and Fluorocarbons

Polymeric Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
DE No. 3422-Bakelite	JPN	26	50	No report	53-M2-4
	MRP	24	50	Yellowed	53-M2-4
	T-2	24	50	Yellowed	53-M2-4
	T-8	24	50	Yellowed	53-M2-4
Hypolon S-2	Fuze Powder	9	76	No change	53-M2-87
Kel-F	MRP	24	50	No change	53-M2-4
	T-2	24	50	No change	53-M2-4
	T-8	24	50	No change	53-M2-4
Teflon	MRP	24	50	No change	53-M2-4
	T-2	24	50	No change	53-M2-4
	T-8	24	50	No change	53-M2-4
	Aluminum	3	71	Became a little gray	57-TM2-42
	Ammonal	3	71	Slight browning at edges	57-TM2-42
	DBX	3	71	Slight browning at edges	57-TM2-42
	HBX	3	71	Slight browning at edges	57-TM2-42
	Tritonal	3	71	Slight browning at edges	57-TM2-42

TABLE 36

100°C Heat Test Results for Ethylenes and Fluorocarbons

Material and Weight, in gms	Explosive and Weight, in gms	1st 48 Hrs. Gms	1st 48 Hrs. %	2nd 48 Hrs. Gms	2nd 48 Hrs. %	Explosion at 100 Hrs.	Picatinny Report No.
Hypolon S-2	Lead Azide						
0.6	0.6	0.0098	0.82	0.0022	0.18	None	53-M2-89
0.6	—	0.0060	1.00	0.0016	0.27	None	53-M2-89
—	0.6	0.0043	0.72	0.000	0.00	None	53-M2-89
	Primer Mix-M-20						
0.6	0.6	0.0105	0.87	0.0024	0.19	None	53-M2-89
0.6	—	0.0060	1.00	0.0016	0.27	None	53-M2-89
—	0.6	0.0019	0.32	0.0004	0.00	None	53-M2-89
	Primer Mix-100						
0.6	0.6	0.0076	0.63	0.0018	0.15	None	53-M2-89
0.6	—	0.0060	1.00	0.0016	0.27	None	53-M2-89
—	0.6	0.0006	0.10	0.0000	0.00	None	53-M2-89
	Primer Mix-Nol 130						
0.6	0.6	0.0190	1.58	0.0027	0.23	None	53-M2-89
0.6	—	0.0060	1.00	0.0016	0.27	None	53-M2-89
—	0.6	0.0083	1.38	0.0015	0.25	None	53-M2-89
Straight Polyethylene	K-29 Igniter Mix						
0.6	0.6	0.0006	0.05	0.0004	0.04	None	51-8-17
0.6	—	0.0005	0.09	0.0000	0.00	None	51-8-17
—	0.6	0.0006	0.10	0.0003	0.05	None	51-8-17

Section 5

FURANES

There are many types of furane resins, including partially polymerized furfuryl alcohol and furfuryl alcohol reacted with furfural, formaldehyde, ketones, phenols, and ureas.

This section deals with the resins produced by the reaction of furfuryl alcohol with furfural.

Observation of available data indicates that:

1. Double-base propellants in contact with furanes cured with Z1A catalyst show excessive reactivity.

2. HMX shows mild reactivity in the presence of furanes when cured with PC and is excessively reactive when cured with CM catalyst.

3. Furanes show little or no deterioration of physical properties in the presence of explosives or propellants.

TABLE 37

Vacuum Stability Test Results for Furane Resins

Material	Catalyst	Explosive or Propellant	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Furane X-2	CM	Cyclotol 75/25	100	5.84	0.30	4.04	0.00	None	56-H1-867
	ZIA	Cyclotol 75/25	100	0.79	0.30	0.81	0.00	None	56-H1-867
	PC	Cyclotol 75/25	100	1.03	0.23	0.72	0.00	None	57-H1-32
	CM	HMX	100	6.26	0.41	11^{+}	4.33^{+}		57-H1-19
	PC	HMX	100	1.03	0.56	4.54	2.95	Slight	57-H1-32
	CM	HMX/Exon 90/10	100	0.30	7.44	6.97	0.77	Negligible	57-H1-1301
	PC	HMX/Exon 90/10	100	0.30	0.69	0.65	0.00	None	57-H1-1301
	ZIA	JPN	90	1.05	2.51	11^{+}	7.44^{+}	Excessive	53-M2-4
		MRP	90	1.05	1.99	11^{+}	7.96^{+}	Excessive	53-M2-4
		T-2	90	0.47	3.54	4.91	0.90	Negligible	53-M2-4
		T-8	90	1.05	2.13	11^{+}	7.[illegible]$^{+}$	Excessive	53-M2-4
	CM	PBX	100	6.33	0.33	5.15	0.00	None	57-H1-20
	PC	PBX	100	1.03	0.24	0.99	0.00	None	57-H1-32
	CM	PETN	100	0.84	0.45	1.54	0.25	Negligible	57-H1-1302
	ZIA	PETN	100	6.08	0.45	6.51	0.00	None	57-H1-1302
	CM	Tetryl	100	0.84	0.45	1.27	0.00	None	57-H1-1302
	ZIA	Tetryl	100	6.08	0.45	5.80	0.00	None	57-H1-1302
Duralon 31	CM	HMX	100	0.37	4.76	4.76	0.00	None	57-H1-1105
	PC	HMX	100	6.12	1.35	11.00^{+}	3.53^{+}	Slight	57-H1-1105

TABLE 38

Appearance of Furanes After Storage

Material	Catalyst	Explosive or Propellant	Storage, Weeks	Temperature, °C	Effects on the Polymer	Picatinny Report No.
Furane X-2	Z1A	JPN	26	50	No change	53-M2-4
		MRP	26	50	Hardens	53-M2-4
		T-2	26	50	No change	53-M2-4
		T-8	26	50	Hardens	53-M2-4

% Change in Weight of Furanes After Storage

Material	Catalyst	Explosive or Propellant	Storage, Weeks	Temperature, °C	Control Change, %	Specimen Change, %	Picatinny Report No.
Furane X-2	Z1A	JPN	26	50	-2.50	-4.06	53-M2-4
		MRP	26	50	-2.50	-2.80	53-M2-4
		T-2	26	50	-2.50	-3.29	53-M2-4
		T-8	26	50	-2.50	-2.78	53-M2-4

Section 6

POLYAMIDES

The nylon polyamide resins evaluated had little or no appreciable effect on the explosives and propellants. Conversely, the nylon polyamides appeared to be essentially unaffected by the explosives and propellants used in the evaluations.

Certain low-molecular-weight polyamides, such as the Versamids, were found to cause excessive reactivity of some explosives when used by themselves. These polyamides are essentially the reaction products of unsaturated fatty acids and aryl or alkyl polyamines. Such low-molecular-weight polyamides are usually not used by themselves in Ordnance application but are often used as hardeners for epoxy resins. The behavior of polyamide-epoxy mixtures is reported in the section dealing with epoxies.

TABLE 39

Vacuum Stability Test Results for Polyamides

Material	Explosive or Propellant	Test Temp, °C	Polymer Control	Explosive Control	Polymer & Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
FM-1 Nylon	MRP	90	0.27	1.71	2.37	0.39	Negligible	134829
	T-2	90	0.27	7.22	7.73	0.24	Negligible	134829
	T-8	90	0.27	2.04	2.30	0.00	None	134829
FM-3 Nylon	JPN	90	0.20	2.36	4.11	1.55	Very slight	53-M2-4
	MRP	90	0.20	1.71	2.99	1.08	Very slight	53-M2-4
	T-2	90	0.20	7.22	8.11	0.69	Negligible	53-M2-4
	T-8	90	0.20	2.04	2.70	0.46	Negligible	53-M2-4
FM-10001 Nylon	Composition B	100	0.23	0.21	0.35	0.00	None	52-M2-99
	RDX	100	0.23	0.24	0.23	0.00	None	52-M2-99
	Tetryl	100	0.23	0.26	0.30	0.00	None	52-M2-99
	Tetrytol	100	0.23	2.97	2.35	0.00	None	52-M2-99
	TNT	100	0.23	0.03	0.24	0.00	None	52-M2-99
6501-Nylon	HMX	100	0.21	0.29	1.03	0.53	Negligible	55-H1-1117
	RDX	100	0.21	0.30	1.07	0.56	Negligible	55-H1-1117
	TNT	100	0.29	0.18	0.45	0.00	None	56-M2-51
Silk Grade E	Black powder	100	0.13	0.36	0.43	0.00	None	52-M2-6
	M-1	90	0.13	0.53	0.61	0.00	None	52-M2-6
	M-9	90	0.14	9.48	7.08	0.00	None	131219
Polyamide Hot Dip No. 220	Black powder	90	0.40	1.72	0.97	0.00	None	56-M2-75
	Cyclotol 75-25	100	0.40	0.30	1.37	0.67	Negligible	56-M2-75
	M-8	90	0.43	4.49	9.14	4.23	Moderate	56-M2-75
	M-10	90	0.43	1.60	1.65	0.00	None	56-M2-75

TABLE 40

Percent Change in Weight of Polyamides after Storage

Polymer	Explosive	Storage, wks	Test Temp, °C	% Weight Change, Control	% Weight Change, Contact	Picatinny Report No.
FM-3 Nylon	JPN	26	50	−0.92	−0.26	53-M2-4
	MRP	24	50	−0.92	−0.78	53-M2-4
	T-2	24	50	−0.92	−0.67	53-M2-4
	T-8	24	50	−0.92	−0.80	53-M2-4
FM-10001-Nylon	Composition B	8	76	−1.71	−1.43	52-M2-99
	RDX	8	76	−1.71	−1.60	52-M2-99
	Tetryl	8	76	−1.71	−1.58	52-M2-99
	Tetrytol	8	76	−1.71	−1.30	52-M2-99
	TNT	8	76	−1.71	−0.08	52-M2-99
6501-Nylon	TNT	24	71	−3.16	−2.67	56-M2-51
Polyamide Hot Dip No. 220	Black powder	32	76	+0.25	+6.30	56-M2-15
	Cyclotol 75-25	32	76	+0.25	+10.4	56-M2-15
	M-8	32	50	−0.18	+21.4	56-M2-15
	M-10	20	76	+0.25	−0.39	56-M2-15
Silk Grade E	Black powder	11	76	−4.93	−6.29	52-M2-6
	M-1	11	50	−3.53	−4.36	52-M2-6

TABLE 41

Appearance of Polyamides after Storage

Material	Expl or Prop	Storage, wks	Temp, °C	Appearance of Specimens	Picatinny Report No.
FM-3 Nylon	JPN	26	50	No change	53-M2-4
	MRP	24	50	No change	53-M2-4
	T-2	24	50	No change	53-M2-4
	T-8	24	50	No change	53-M2-4
6501-Nylon	TNT	24	71	Turns brown, becomes slightly tacky	56-M2-51
Polyamide Hot Dip No. 220	Black powder	32	100	Turns black	56-M2-75
	Cyclotol 75/25	32	100	Blackens, hardens, becomes opaque	56-M2-75
	M-8	32	50	Softens, becomes slightly tacky	56-M2-75
	M-10	20	50	Deteriorates	56-M2-75

TABLE 42

Physical Property Changes in Nylon 6503 (Zytel 63)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, in lbs	σ ±
Original Control		0	7560	323	353	44.4	4510	213	11.5	1.8	2160	–	86.8 × 10³	–	36.2	12.8
Room Control	12	+0.3	8920	1534	45.6	29.0	3070	53	13.6	0.5	1260	–	63.4 × 10³	–	28.8	5.6
50°C Control	12	-1.5	8190	1718	344	59	4870	162	15.2	2.6	2110	–	64.2 × 10³	–	51.1	8.2
In contact with JPN at 50°C	12	-0.5	6990	1908	336	16	4640	100	17.3	1.5	1750	–	104 × 10³	–	55.9	7.1
In contact with OGK at 50°C	12	-0.5	8240	297	343	60	4390	77	16.7	1.1	2040	–	88.5 × 10³	–	49.8	4.9
In contact with OIO at 50°C	12	-0.8	7990	1302	344	12	4830	59	17.0	2.6	2250	–	113 × 10³	–	58.7	8.6
In contact with M2 at 50°C	12	-2.6	7460	634	290	182	7200	649	7.4	2.5	3600	–	210 × 10³	–	38.1	10.0
In contact with M7 at 50°C	12	-0.5	6040	692	32[illegible]	18	4750	158	16.6	1.4	1520	–	109 × 10³	–	55.1	5.3
In contact with M8 at 50°C	12	-2.0	7010	954	6.1	3.7	7020	954	5.3	0.4	4560	–	228 × 10³	–	20.7	4.9
In contact with M9 at 50°C	12	-0.1	4090	169	145	145	4340	169	15.0	1.6	1760	–	96 × 10³	–	36.1	9.3
In contact with M25 at 50°C	12	-1.7	6510	543	5.5	2.4	6510	543	5.5	1.2	3960	–	259 × 10³	–	20.7	6.9
In contact with T6 at 50°C	12	-0.8	8370	497	364	74	4430	305	17.5	0.9	1,000	–	99.1 × 10³	–	52.7	7.4
In contact with T4 at 50°C	12	-0.9	[illegible]	1703	362	26	4470	76	17.6	2.9	1650	–	102 × 10³	–	48.6	10.2
In contact with T16 at 50°C	12	-0.5	5150	1137	265	75	44[illegible]	165	27.7	4.9	1900	–	114 × 10³	–	59.7	12.1
In contact with T18 at 50°C	12	-1.2	3470	454	5.0	1.0	3470	408	5.0	1.0	1570	–	126 × 10³	–	10.1	2.6
In contact with T19 at 50°C	12	-0.4	5030	1126	326	15	4430	77	16.6	1.2	[illegible]	–	96 × 10³	–	51.6	2.1

TABLE 43

Physical Property Changes in Nylon 10001 (Zytel 101)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft lbs	σ ±
Original Control		0.0	10,700	115	32.0	8.1	10,700	115	5.88	1.9						
Room Control	12	0.1	9,520	633	290	20.0	7,600	223	19.0	5.8	2910	–	278 × 10³	–	112	31.0
50°C Control	12	-0.9	9,410	26	105	10	9,410	26	16.1	2.9	4080	–	431 × 10³	–	117	13.0
In contact with JPN at 50°C	12	-0.1	9,210	92	93.6	41	9,220	92	13.5	2.2	4450	–	377 × 10³	–	101	17.6
In contact with OGA at 50°C	12	-0.1	9,390	92	101	[illegible]	9,390	92	18.5	0.5	3922	–	379 × 10³	–	133	12.0
In contact with OHO at 50°C	12	-0.1	9,510	155	116	54	9,510	155	17.5	1.8	3720	–	403 × 10³	–	125	13.0
In contact with M2 at 50°C	12	-0.9	11,750	225	17.8	7.0	11,750	225	4.9	0.3	856	–	391 × 10³	–	33.5	2.7
In contact with M7 at 50°C	12	-0.2	9,530	71	67.8	52	9,530	71	21.4	7.0	5590	–	401 × 10³	–	154	46.0
In contact with M[illegible] at 50°C	12	-0.1	11,160	76	16.1	2.4	11,1[illegible]	76	4.8	0.2	817[illegible]	–	379 × 10³	–	29.7	1.8
In contact with M3 at 50°C	12	-0.2	9,450	74	108	42	9,450	74	16.3	1.8	4530	–	335 × 10³	–	122	11.0
In contact with M15 at 50°C	12	-0.9	11,[illegible]	409	24	17	11,5[illegible]	41[illegible]	4.7	0.2	8020	–	410 × 10³	–	31.1	2.5
In contact with [illegible] at 50°C	12	-0.2	9,270	29	103	85	9,270	29	9.5	6.2	41[illegible]	–	351 × 10³	–	66.8	42.6
In contact with [illegible] at 50°C	12	-0.1	9,470	99	107	2[illegible]	9,47[illegible]	99	21.9	2.5	511[illegible]	–	329 × 10³	–	149	17.0
In contact with T16 at 50°C	12	-3.7	9,560	94	204	47	9,5[illegible]	94	16.8	0.6	344[illegible]	–	42[illegible] × 10³	–	123	5.0
In contact with T19 at 50°C	12	-0.1	9,550	66	151	7[illegible]	9,5[illegible]	66	15.1	1.9	521[illegible]	–	350 × 10³	–	115	11.0
In contact with T1[illegible] at 50°C	12	-0.2	9,090	17[illegible]	94	41	9,0[illegible]	17[illegible]	13.5	1.7	52[illegible]	–	37[illegible] × 10³	–	164	10

TABLE 44

Physical Property Changes in Nylon 6501 (Zytel 61)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft lbs	σ ±
Original Control		0	6420	556	314	38.1	2930	71.5	15.6	1.36	1990	104	58,900	6731	30.7	2.83
Room Control	12	−1.4	[illegible]	41	295	32	6850	41	14.9	1.4	3030	—	127×10^3	—	33.2	5.6
50°C control	12	−0.3	8150	64	311	5.0	4860	117	15.6	1.6	2740	—	98.9×10^3	—	52.1	2.3
In contact with JP-5 at 50°C	12	+0.5	8440	81	302	9.0	4380	63	19.5	1.9	2170	—	78.5×10^3	—	54.3	5.3
In contact with O-K at 50°C	12	−0.1	8420	437	308	6.0	4630	91	17.5	10.0	1950	—	94.4×10^3	—	61.0	5.4
In contact with O10 at 50°C	12	0.0	7630	1224	325	11.0	5190	46	15.5	1.8	2210	—	121×10^3	—	60.6	10.6
In contact with M2 at 50°C	12	−2.5	8370	850	358	5.0	7150	110	6.8	0.4	[illegible]	—	197×10^3	—	32.0	2.8
In contact with M7 at 50°C	12	−0.6	[illegible]	[illegible]	322	15.0	4910	64	17.0	2.4	2260	—	104×10^3	—	64.2	9.6
In contact with M8 at 50°C	12	−1.9	6540	94	164	15.0	6560	102	7.43	0.96	5060	—	[illegible]	—	35.6	9.5
In contact with M9 at 50°C	12	+0.8	8000	125	297	6.0	4200	151	16.5	1.7	1870	—	87.6×10^3	—	56.4	6.6
In contact with M15 at 50°C	12	−1.7	5940	463	337	18.0	5650	283	12.9	3.1	3140		133×10^3	—	57.9	12.9
In contact with T6 at 50°C	12	[illegible]	[illegible]	108	306	6.0	4510	94	18.0	3.1	1810		[illegible]	—	59.2	9.9
In contact with T8 at 50°C	12	−0.1														
In contact with T16 at 50°C	12	−0.6	7110	1670	293	14.0	4460	59	17.5	1.6	[illegible]		93×10^3	—	54.9	3.9
In contact with T18 at 50°C	12	−0.2	8330	203	301	10.0	4342	55	17.8	2.4	1950		83.5×10^3	—	57.5	3.8
In contact with T19 at 50°C	12	+0.5	5120	455	304	10.0	4490	12	19.0	0.8	[illegible]		96.4×10^3	—	52.2	3.5

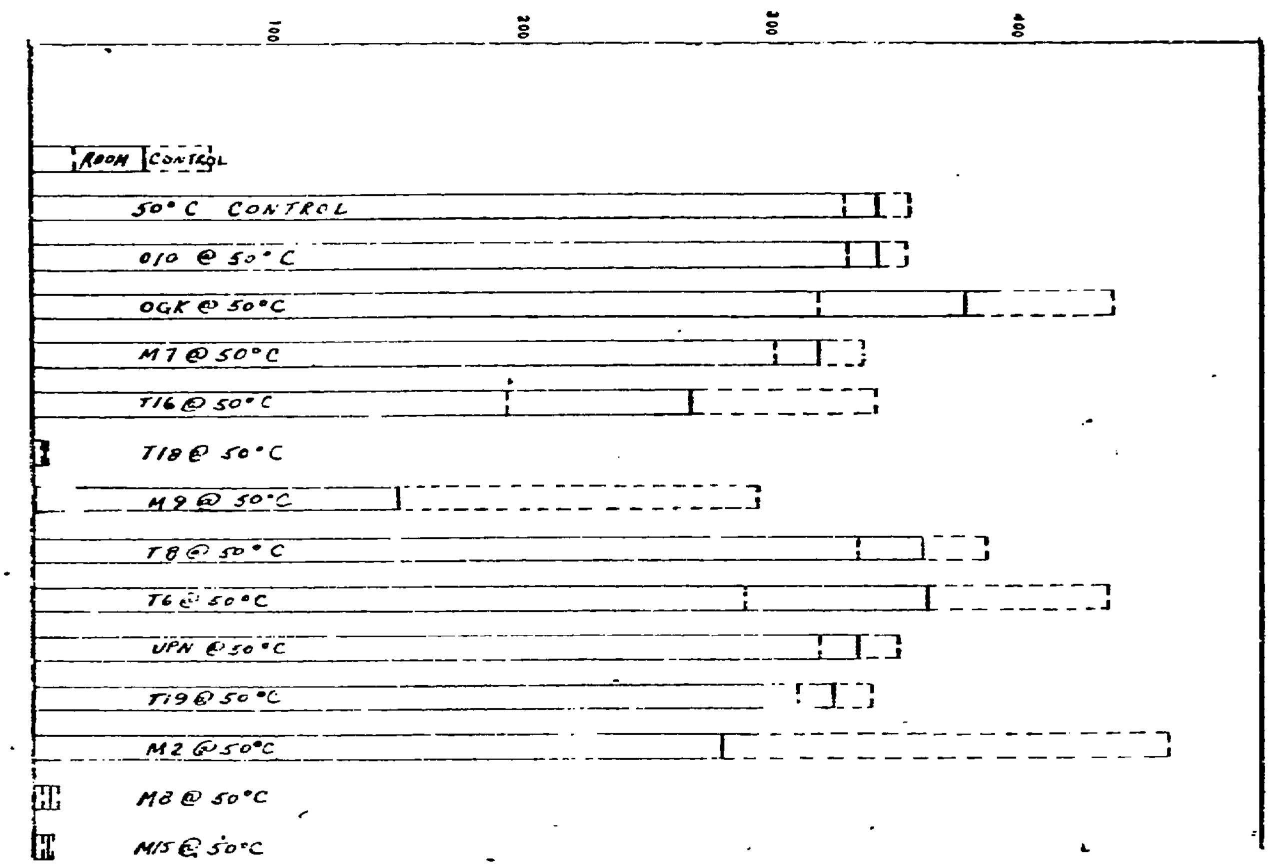

Fig 17   Percent Elongation at Break of Nylon 6503 (Zytel 63) after 12 Months Storage with Various Propellants (Range of standard deviations is indicated by broken lines)

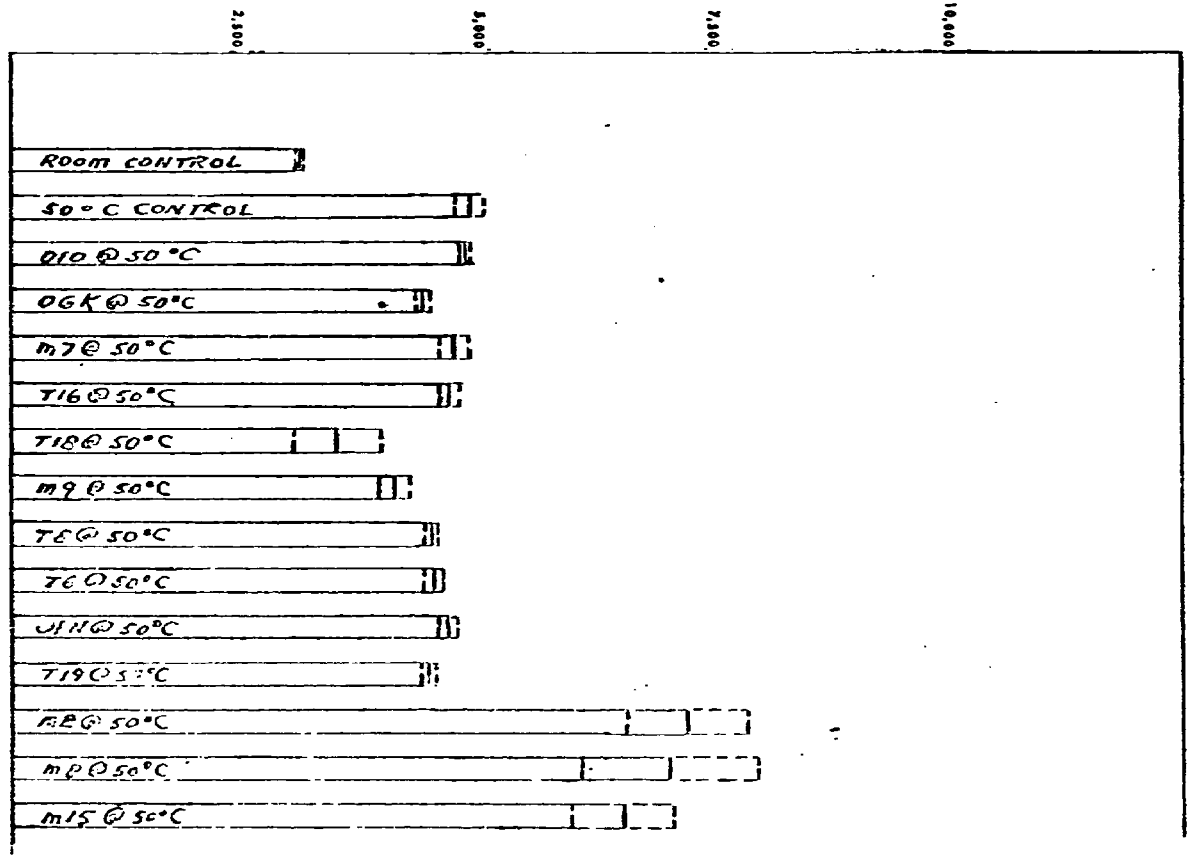

Fig 18   Yield Strength of Nylon 6503 (Zytel 63) after 12 Months Storage with Various Propellants

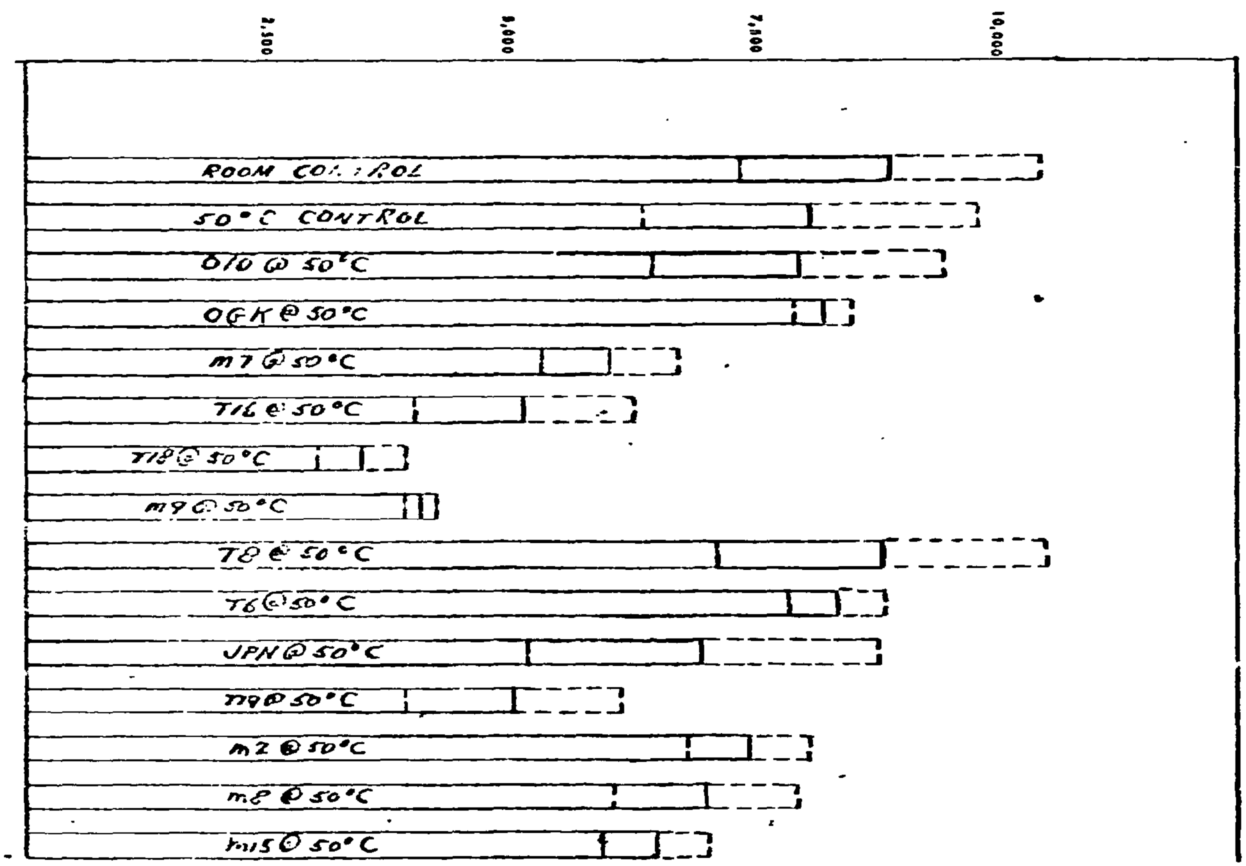

Fig 19 Maximum Tensile Strength of Nylon 6503 (Zytel 63) after 12 Months Storage with Various Propellants

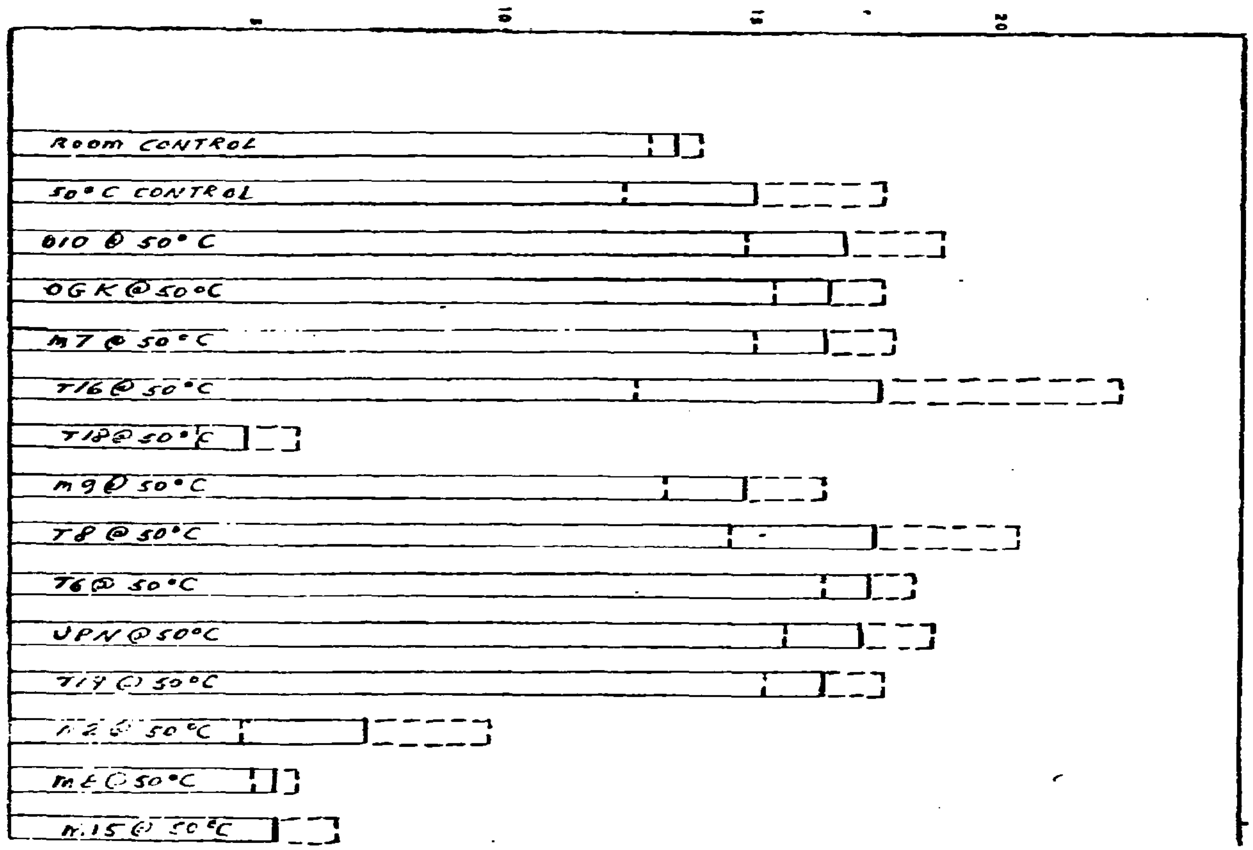

Fig 20 Percent Elongation at Yield of Nylon 6503 (Zytel 63) after 12 Months Storage with Various Propellants

Section 7

PHENOLICS

The chemistry of phenol-formaldehydes and related polymers is complex. These polymers are the basis for many important plastics, adhesives, and coating materials. It is outside the intent of this report to discuss these materials except in terms of properties which are related to compatibility.

On the basis of available data, the following conclusions were reached:

1. Properly cured unmodified phenolic molding materials do not adversely affect the reactivity of explosives and propellants.

2. Phenolic molding materials are substantially unaffected by explosives and propellants.

3. Rubber-modified phenolics in general produce greater reactivity than unmodified phenolics. It is recommended that rubber-modified phenolics be further investigated before they are used with explosives in Ordnance applications.

TABLE 45

Vacuum Stability Test Results For Phenolics

Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Armstrong J-1140B	Composition A	100	0.64	0.37	0.57	0.00	None	52-M2-110
	Composition B	100	0.64	0.36	1.27	0.27	Negligible	52-M2-110
	Composition C-3	100	0.64	1.25	3.04	1.15	Very slight	52-M2-110
	Composition C-4	100	0.64	0.29	1.13	0.20	Negligible	52-M2-110
	Pentolite 50/50	100	0.64	2.11	2.21	0.00	None	52-M2-110
	PETN	100	1.00	0.46	0.82	0.00	None	52-M2-110
	RDX	100	0.64	0.30	0.63	0.00	None	52-M2-110
	Tetrytol 75/25	100	0.64	4.30	7.37	2.43	Slight	52-M2-110
	TNT	100	0.64	0.21	0.50	0.00	None	52-M2-110
Bakelite BM-250	NRL prop.	90	0.16	0.36	0.28	0.00	None	56-HI-1559
Bakelite BM-261	Igniter Charge K-29	100	0.51	0.11	0.09	0.00	None	56-M2-11
	RDX	100	0.51	0.17	1.03	0.35	Negligible	56-M2-11
Bakelite BM-6102	Composition B	100	0.33	0.32	1.14	0.49	Negligible	53-M2-21
	M-2	90	0.15	2.35	5.33	2.83	Slight	52-M2-44
Bakelite BM-6260	Black powder	100	0.14	0.54	0.41	0.00	None	53-M2-64
	Photo flashlight powder	100	0.14	2.19	3.97	1.64	Very slight	53-M2-64
	Potassium Chlorate Primer Mix	100	0.16	0.83	0.96	0.00	None	52-M2-144
Bakelite BM-13090	Composition B	100	0.14	0.21	0.30	0.00	None	52-M2-48
	TNT	100	0.14	0.08	0.26	0.04	Negligible	52-M2-48
Bakelite BV-1600	Composition C-4	100	0.35	0.08	0.22	0.00	None	51-8-26

TABLE 45 (Cont)

Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Bakelite XV-1657	Composition C-4	100	0.53	0.08	0.44	0.00	None	51-8-26
Bakelite VF-612	Composition C-4	100	0.43	0.08	0.38	0.00	None	51-8-26
Corfoam No. 114	HBX-6	100	0.40	0.76	2.37	1.21	Very slight	56-M2-63
	M-10	90	0.29	1.46	3.44	1.69	Very slight	55-M2-51
	T-18	90	0.24	3.56	2.83	0.00	Very slight	55-M2-51
Durez No. 1905	M-16	90	0.05	5.12	5.53	0.36	Negligible	57-TM2-6
	T-16	90	0.04	2.80	4.52	1.68	Very slight	55-M2-6
	T-19	90	0.05	2.86	2.89	0.00	None	57-TM2-6
Durez No. 11864	Composition A-3	120	0.27	0.46	2.27	1.54	Very slight	54-M2-23
Durez No. 12041	M-2	90	0.31	2.48	4.41	1.62	Very slight	52-M2-84
Durez No. 13348	M-2	90	0.17	2.35	11+	8.48+	Excessive	52-M2-44
Durez No. 14658	M-2	90	0.20	2.35	11+	8.45+	Excessive	52-M2-44
Durez No. 16221	Mox 2-B	100	0.14	0.30	0.22	0.00	None	56-M2-69
Durite HP-349	PETN	100	0.18	0.32	0.59	0.09	Negligible	53-M2-84
	RDX	100	0.18	0.34	1.58	1.06	Very slight	53-M2-84
	Tetryl	100	0.18	0.46	0.48	0.00	None	53-M2-84
Enrup No. 2507-F4	M-2	90	0.23	2.35	5.15	2.57	Slight	52-M2-44
2530	M-2	90	0.25	2.35	5.52	2.92	Slight	52-M2-44
2532 F-2	M-2	90	0.24	2.35	5.18	2.59	Slight	52-M2-44
2537 F	M-2	90	0.33	2.35	7.11	4.43	Moderate	52-M2-44

TABLE 45 (Cont)

Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
G.E. No. 12437	Composition B	100	0.36	0.32	2.10	1.42	Very slight	53-M2-21
	M-2	90	0.27	2.71	9.61	6.63	Excessive	52-M2-44
	Pentolite 50/50	100	0.23	1.82	1.84	0.00	None	53-M2-17
G.E. No. 12494	Composition B	100	0.23	0.18	3.05	2.64	Slight	55-H1-396
G.E. No. 12840	Composition B	100	0.16	0.29	0.38	0.00	None	52-M2-48
	Pentolite 50/50	100	0.23	1.82	1.69	0.00	None	53-M2-17
	TNT	100	0.16	0.07	0.20	0.00	None	52-M2-48
G.E. No. 12809	M-2	90	0.11	0.42	6.25	5.72	Excessive	52-M2-177
Melmac 1502	TNT	100	0.28	0.12	1.71	1.31	Very slight	132861
Micarta	Composition C-4	100	0.39	0.27	0.16	0.00	None	56-M2-47
Micro-Balloons	HBX-6	100	0.65	0.66	1.84	0.53	Negligible	56-M2-62
Palmer Resin No. 752	PETN	100	0.39	0.40	0.37	0.00	None	55-M2-32
Pendacolite G 1215A	JPN	90	1.02	2.51	2.84	0.00	None	53-M2-4
	MRP	90	1.02	1.99	2.27	0.00	None	53-M2-4
	T-2	90	1.02	6.37	5.48	0.00	None	53-M2-4
	T-8	90	1.02	2.13	2.40	0.00	None	53-M2-4
Phenol-formaldehyde No. 2611	JPN	90	0.24	2.36	2.17	0.00	None	53-M2-4
	MRP	90	0.24	1.71	1.59	0.00	None	53-M2-4
	T-2	90	0.24	7.22	5.68	0.00	None	53-M2-4
	T-8	90	0.24	2.04	1.80	0.00	None	53-M2-4

TABLE 45 (Cont)

Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Phenol-formaldehyde foam	Composition B	100	1.33	0.25	2.43	0.85	Negligible	52-M2-127
Phenol-formaldehyde Varnish	Black powder	100	0.69	0.37	0.97	0.00	None	51-8-20
	Composition C-4	100	0.43	0.08	0.38	0.00	None	51-8-26
	Lead Azide	100	2.25	1.95	3.55	0.00	None	51-8-3
	PETN	100	0.68	0.80	0.68	0.00	None	52-M2-151
Phenolic Resin No. 9594	Composition C-4					0.00		
Resinox No. 5797	Photoflash powder	100	0.42	0.99	1.70	0.29	Negligible	52-M2-115
Synvar No. 85651	M-2	90	0.26	2.35	11⁺	8.39⁺	Excessive	52-M2-44
86512	M-2	90	0.23	2.35	7.71	5.13	Excessive	52-M2-44
Synvarite	T-28	90	0.23	4.71	5.48	0.54	Negligible	57-TM2-29
Taylor Grade XX	Composition Smoke No. 259	100	0.30	0.32	0.34	0.00	None	54-M2-64
Laminate	Potassium Chlorate Primer	100	0.14	0.83	0.62	0.00	None	52-M2-144
World Bestos Phenolic, Acrylonitrite	Composition A-3	100	0.26	0.39	0.44	0.00	None	53-M2-69
	Composition C-3	100	0.26	1.02	2.53	1.25	Very slight	53-M2-69
	Tetryl	100	0.26	0.47	1.05	0.32	Negligible	53-M2-69
Dielecto Tubing	Tetryl	100	0.14	0.43	0.30	0.00	None	55-M2-46
	Tetrytol 75/25	100	0.14	3.96	3.08	0.00	None	55-M2-46
	TNT	100	0.14	0.08	0.27	0.05	Negligible	55-M2-46

TABLE 45 (Cont)

Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Amberlite PR No. 115 Resorcinol formaldehyde	HBX-6	100	0.83	0.43	1.03	0.00	None	56-M2-42
	RDX	100	0.83	0.29	0.52	0.00	None	56-M2-42
Vibraglass No. 9594	T-19	90	0.15	3.28	5.29	1.86	Very slight	55-M2-4

TABLE 46

Percent Change in Weight of Phenolic After Storage

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight Change Control	% Weight Change Contact	Picatinny Report No.
Bakelite BM-6102	M-2	8	50	−1.42	−1.53	52-M2-44
Durez No. 1905	M-16	28	50	−2.05	−1.93	57-TM2-6
	T-19	28	50	−2.05	−1.88	57-TM2-6
Durez No. 13348	M-2	8	50	−1.46	+0.24	52-M2-44
Durez No. 14658	M-2	8	50	−1.39	−0.27	52-M2-44
Enrup No. 2507 F4	M-2	8	50	−0.41	+3.02	52-M2-44
2530	M-2	8	50	−0.42	+1.66	52-M2-44
2532 F-2	M-2	8	50	−0.33	+2.49	52-M2-44
2537 F	M-2	8	50	−0.53	+1.25	52-M2-44
Micro-Balloons	HBX-6	24	71	−1.75	−11.7	56-M2-61
Penacolite G-1215A	JPN	26	50	−4.36	−5.00	53-M2-4
	MRP	26	50	−4.36	−4.08	53-M2-4
	T-2	26	50	−4.36	−4.71	53-M2-4
	T-8	26	50	−4.36	−3.97	53-M2-4
Phenol-formaldehyde No. 2611	JPN	26	50	−1.66	−1.13	53-M2-4
	MRP	24	50	−1.66	−1.57	53-M2-4
	T-2	24	50	−1.66	−1.62	53-M2-4
	T-8	24	50	−1.66	−1.51	53-M2-4
Phenol-formaldehyde foam	Comp B	24	77	0.20	0.08	52-M2-127

TABLE 46 (Cont)

Polymer	Explosive	Storage Weeks	Temperature, °C	% Weight Change Control	% Weight Change Contact	Picatinny Report No.
Synvar No. 85651	M-2	8	50	−0.87	+1.06	52-M2-44
Synvar No. 86512	M-2	8	50	−0.95	−0.27	52-M2-44
Synvarite	T-28	24	76	+0.68	+1.26	5?-TM2-29
Dielectro Tubing	Tetryl	24	76	−1.97	−1.99	55-M2-46
	Tetrytol 75/25	24	76	−1.97	−1.25	55-M2-46
	TNT	24	76	−1.97	−1.07	55-M2-46
Vibraglass No. 9594	T-19	23	50	−0.29	+22.0	55-M2-4

TABLE 47

Appearance of Phenolics After Storage

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Appearance of Specimens	Picatinny Report No.
Bakelite BV-1600	Composition C-4	6	71	No change	51-8-26
Bakelite XV-1657	Composition C-4	6	71	Slightly softens	51-8-26
Durez No. 1905	M-16	28	50	No change	57-TM2-6
	T-19	28	50	No change	57-TM2-6
Durez No. 12041	M-2	4	50	No change	52-M2-84
Micro Balloons	HBX-6	24	71	No change	56-M2-61
Penacolite G1215A	JPN	26	50	No change	53-M2-4
	MRP	26	50	No change	53-M2-4
	T-2	26	50	No change	53-M2-4
	T-8	26	50	No change	53-M2-4
Phenol-formaldehyde No. 2611	JPN	26	50	–	53-M2-4
	MRP	24	50	No change	53-M2-4
	T-2	24	50	No change	53-M2-4
	T-8	24	50	No change	53-M2-4
Phenol formaldehyde Varnish	Black powder	16	76	No change	51-8-20
Synvarite	T-28	24	76	Slightly darkened	57-TM2-29

TABLE 47 (Cont)

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Appearance of Specimens	Picatinny Report No.
Dielecto Tubing	Tetryl	24	76	Darkens slightly	55-M2-46
	Tetrytol 75/25	24	76	Darkens slightly	55-M2-46
	TNT	24	76	Darkens slightly	55-M2-46
Vibraglass No. 9594	T-19	12	76	Loses adhesion	55-M2-4

TABLE 48

100°C Heat Test Results for Phenolics

Material and Weight in Grams	Explosive and Weight in Grams	1st 48 Hrs. Grams	1st 48 Hrs. %	2nd 48 Hrs. Grams	2nd 48 Hrs. %	Explosion in 100 Hrs.	Picatinny Report No.
Armstrong J-1140B	Dynamite						
0.6	0.6	0.0404	3.37	0.0191	1.59	None	52-M2-110
0.6	—	0.0075	1.25	0.0012	0.20	None	52-M2-110
—	0.6	0.0404	6.72	0.0226	3.76	None	52-M2-140
Bakelite BM-261	Lead Azide						
0.6	0.6	0.0064	5.33	0.0016	0.13	None	56-M2-11
0.6	—	0.0017	0.28	0.0020	0.33	None	56-M2-11
—	0.6	0.0022	0.37	0.0004	0.06	None	56-M2-11
Bakelite-Pc-HR-73-2-256c	Lead Azide						
0.6	0.6	0.0341	2.84	0.0005	0.04	None	52-M2-172
0.6	—	0.0293	4.88	0.0008	0.13	None	52-M2-172
—	0.6	0.0031	0.52	0.0003	0.05	None	52-M2-172
Durite HR-340	Lead Azide						
0.6	0.6	0.0172	1.43	0.0005	0.04	None	53-M2-84
0.6	—	0.0068	1.13	0.0000	0.00	None	53-M2-84
—	0.6	0.0050	0.83	0.0007	0.11	None	53-M2-84

TABLE 48 (Cont)

Material and Weight in Grams	Explosive and Weight in Grams	1st 48 Hrs. Grams	1st 48 Hrs. %	2nd 48 Hrs. Grams	2nd 48 Hrs. %	Explosion in 100 Hrs.	Picatinny Report No.
Durite HR-340	Lead Styphnate						
0.6	0.6	0.0259	2.14	0.0055	0.46	None	53-M2-84
0.6	–	0.0068	1.18	0.0000	0.00	None	53-M2-84
–	0.6	0.0134	2.23	0.0085	1.41	None	53-M2-84
	Nol 130 Primer Mix						
0.6	0.6	0.0163	1.35	0.0022	0.18	None	53-M2-84
0.6	–	0.0068	1.13	0.0000	0.00	None	53-M2-84
–	0.6	0.0097	1.62	0.0009	0.15	None	53-M2-84
Durite HR-340	Potassium Dinitrobenzofuraxan						
0.6	0.6	0.0075	0.63	0.0000	0.00	None	53-M2-84
0.6	–	0.0068	1.13	0.0000	0.00	None	53-M2-84
–	0.6	0.0013	0.22	0.0000	0.00	None	53-M2-84
Taylor Grade XX	Charge Detonator No. 260						
0.6	0.6	0.0205	1.71	0.0000	0.00	None	54-M2-64
0.6	–	0.0206	3.43	0.0000	0.00	None	54-M2-64
–	0.6	0.0002	0.03	0.0000	0.00	None	54-M2-64

TABLE 49

Physical Property Changes in Bakelite BM 261 (Class 8 asbestos-filled phenol-formaldehyde, block)

	Storage Period, Months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±
Original Control	0	0.0	4860	731	0.3		4860	731	0.3	0.1	2520	92	2.08×10^6	
Room Control	12	0.0	4920	700	1.4	0.1	4900	700	1.4	0.1	2535	245	2.01×10^6	207,000
50°C Control	12	−0.6	4480	304	0.3	0.1	4480	304	0.3	0.1	2570	411	[illegible]	[illegible]
In contact with: OGK at 50°C	12	−0.6	5050	453	0.4	0.1	5050	453	0.4	0.1	2760	145	1.84×10^6	129,000
In contact with OIO at 50°C	12	−0.6	5400	712	6.4	0.0	5400	712	0.4	0.0	2510	105	2.03×10^6	127,000
In contact with M2 at 50°C	12	−0.6	4960	704	0.4	0.1	4960	704	0.3	0.1	[illegible]	67	1.99×10^6	112,000
In contact with M7 at 50°C	12	−0.6	4940	443	0.3	0.0	4940	443	0.3	0.0	2570	142	2.03×10^6	129,000
In contact with [illegible] at 50°C	12	−0.4	5000	493	0.3	0.0	5000	493	0.3	0.0	[illegible]	62	1.94×10^6	[illegible]
In contact with M9 at 50°C	12	−0.6	[illegible]	441	0.3	0.0	[illegible]	441	0.3	0.0	[illegible]	[illegible]	[illegible]	96,000
In contact with M15 at 50°C	12	−0.6	[illegible]	579	0.3	0.1	[illegible]	579	0.3	0.1	[illegible]	62	1.99×10^6	116,000
In contact with T15 at 50°C	12	−1.2	[illegible]	319	0.3	0.1	[illegible]	319	0.3	0.1	[illegible]	102	1.93×10^6	87,300
In contact with T16 at 50°C	12	−0.6	[illegible]	323	0.3	0.0	4610	323	0.3	0.0	[illegible]	153	2.00×10^6	145,000
In contact with T19 at 50°C	12	−0.6	[illegible]	428	0.3	0.0	4760	428	0.3	0.0	[illegible]	148	1.95×10^6	[illegible]

TABLE 56

Physical Property Changes in Bakelite BM 764 (Class 2 Wood-flour-filled phenol-formaldehyde, black)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Impact	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft lbs	σ ±
Original Control	0		5690	773	0.5	0.1	5690	773	0.36	—	5095	773	1.06×10^6	40,369	1.3	0.4
Room Control	12	−2.84	5720	320	0.53	0.02			0.36	0.05	3970	263	1.14×10^6	41,830	1.27	0.13
50°C Control	12	−3.10	5263	517	0.47	0.05			0.38	0.05	3940	345	1.16×10^6	62,519	1.31	0.19
In contact with OG5 at 50°C	12	−2.80	5332	762	0.42	0.06			0.39	0.05	4902	355	1.13×10^6	85,424	1.0	0.29
In contact with OH at 50°C	12	−2.62	5420	522	0.50	0.05			0.40	0.08	4270	191	1.13×10^6	57,075	1.09	0.23
In contact with M2 at 50°C	12	−2.94	5250	816	0.46	0.06			0.39	0.07	3850	283	1.38×10^6	59,140	1.04	0.37
In contact with M7 at 50°C	12	−2.50	5725	821	0.51	0.10			0.39	0.06	4710	558	1.11×10^6	81,055	1.22	0.33
In contact with M8 at 50°C	12	−2.95	5425	675	0.53	0.07			0.34	0.09	3950	182	1.16×10^6	18,525	1.31	0.25
In contact with M9 at 50°C	12	−2.26	5540	455	0.57	0.04			0.50	0.09	4640	670	1.07×10^6	49,164	1.07	0.20
In contact with M15 at 50°C	12	−2.45	5627	755	0.52	0.06			0.37	0.09	3680	[illegible]	1.15×10^6	57,162	1.21	0.28
In contact with T16 at 50°C	12	−2.22	5950	590	0.55	0.06			0.47	0.04	[illegible]	[illegible]	1.11×10^6	[illegible]	1.12	[illegible]
In contact with T18 at 50°C	12	−2.94	645	755	0.60	0.06			0.39	0.05	4760	343	1.10×10^6	41,920	1.60	0.38
In contact with T19 at 50°C	12	[illegible]	[illegible]	316	0.55	0.07			0.40	0.05	4095	502	1.14×10^6	45,675	1.17	0.21

TABLE 51

Physical Property Changes in Textolite 1838 (Grade P laminated phenol-formaldehyde, brown)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft lbs	σ ±
Original Control	0	0.0	13,300	3300	1.3	0.3	13,300	3300	1.3	0.3	5300	1000	1.52×10^6	303,000	9.90	[illegible]
Room Control	12	-0.4	11,800	[illegible]	1.6	0.2	11,800	396	1.6	0.2	5850	325	1.16×10^6	44,700	10.1	2.0
50°C Control	12	-0.9	12,900	[illegible]	1.3	0.2	12,900	438	1.3	0.2	6720	129	1.34×10^6	62,100	8.4	1.2
In contact with Oak at 50°C	12	-0.8	12,600	384	1.3	0.1	12,600	384	1.3	0.1	6090	254	1.29×10^6	38,900	8.2[illegible]	1.26
In contact with OHO at 50°C	12	-0.9	12,[illegible]	[illegible]	1.4	[illegible]	12,[illegible]	215	1.4	0.1	67[illegible]	470	1.31×10^6	[illegible]	9.93	1.36
In contact with M2 at 50°C	12	-2.1	13,[illegible]	347	1.3	2.1	13,[illegible]	347	1.3	0.1	[illegible]	318	1.44×10^6	[illegible]	8.43	2.[illegible]
In contact with M7 at 50°C	12	-0.7	12,[illegible]	[illegible]	1.6	0.2	12,[illegible]	2[illegible]	1.6	0.2	[illegible]	5[illegible]	1.25×10^6	27,[illegible]	[illegible]	1.6
In contact with M[illegible] at 50°C	12	-1.9	13,2[illegible]	3[illegible]	1.3	0.1	13,2[illegible]	3[illegible]	1.3	0.1	[illegible]	429	1.41×10^6	[illegible]	9.[illegible]	0.9[illegible]
In contact with M[illegible] at 50°C	12	-0.7	12,[illegible]	724	1.5	0.2	12,[illegible]	724	1.5	0.2	6[illegible]	93	1.25×10^6	38,[illegible]	9.31	2.3[illegible]
In contact with M13 at 50°C	12	-2.2	13,1[illegible]	21[illegible]	1.2	0.1	13,1[illegible]	22[illegible]	1.2	0.1	8[illegible]	5[illegible]	[illegible]	56,[illegible]	7.31	0.58
In contact with T15 at 50°C	12	-2.1	12,[illegible]	2[illegible]	1.4	0.1	12,[illegible]	2[illegible]	1.4	0.1	[illegible]	[illegible]	[illegible]	52,[illegible]	8.92	0.53
In contact with T[illegible] at 50°C	12	-0.7	12,[illegible]	7[illegible]	1.1	0.1	12,5[illegible]	704	1.1	0.1	6[illegible]	115	1.37×10^6	22,5[illegible]	6.93	1.25
In contact with T13 at 50°C	12	-0.7	13,[illegible]	6[illegible]	1.3	0.1	13,[illegible]	619	1.3	0.1	6[illegible]	314	1.33×10^6	[illegible]	9.46	1.55

TABLE 52

Physical Property Changes in Textolite LE (Laminated phenol-formaldehyde, brown)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield, ft-lbs	σ ±
Original Control	0	0.0	10,409	424	3.8	0.7	9,790	172	1.9	0.3	[illegible]	235	0.76×10^6	75,900	10.1	2.0
Room Control	12	−0.3	10,900	216	4.0	0.3	10,[illegible]	146	1.7	0.1	[illegible]	324	1.20×10^6	11,400	9.45	0.74
50°C Control	12	−1.5	10,[illegible]	281	3.3	0.7	10,400	294	1.8	0.2	4970	342	0.97×10^6	56,900	9.75	1.13
In contact with OLK at 50°C	12	−1.4	10,730	419	3.3	0.2	10,709	419	3.3	0.2	5270	268	1.01×10^6	41,600	8.52	0.93
In contact with OH at 50°C	12	−1.5	10,500	273	2.4	0.2	10,500	273	2.4	0.2	4690	285	1.01×10^6	48,300	9.09	1.25
In contact with M2 at 50°C	12	−1.6	10,90[illegible]	251	2.8	0.4	10,90[illegible]	251	2.8	0.4	3360	456	0.97×10^6	110,[illegible]	10.6	1.10
In contact with [illegible] at 50°C	12	−1.5	10,490	352	2.4	0.3	10,450	352	2.4	0.3	5150	334	1.04×10^6	55,500	8.47	2.0
In contact with [illegible] at 50°C	12	−1.4	10,[illegible]	176	2.2	0.6	10,[illegible]	176	2.2	0.6	[illegible]	[illegible]	$1.0[illegible] \times 10^6$	71,600	8.25	0.9
In contact with [illegible] at 50°C	12	−1.5	10,260	363	2.2	0.3	10,250	363	2.1	0.3	3450	339	1.02×10^6	30,700	12.4	2.8
In contact with [illegible] at 50°C	12	−1.4	10,30[illegible]	311	2.3	0.5	10,[illegible]	311	1.5	0.1	3750	396	1.13×10^6	96,900	7.7	0.47
In contact with [illegible] at 50°C	12	−1.4	10,300	385	2.5	0.6	[illegible]	385	2.5	0.6	3210	280	1.03×10^6	22,600	7.9	0.55
In contact with [illegible] at 50°C	12	−1.4	9,520	541	1.5	0.3	9,520	541	1.4	0.2	3620	745	1.05×10^6	35,100	7.3	2.1
In contact with [illegible] at 50°C	12	−1.4	10,250	871	2.8	0.4	10,250	871	2.8	0.4	4500	459	0.90×10^6	27,200	12.2	2.7

TABLE 53

Physical Property Changes in Textolite 2029 (Laminated phenol-formaldehyde)

	Storage Period, months	Change of Weight, %	Ultimate Tensile Strength, psi	σ ±	Elongation at Break, %	σ ±	Yield Strength, psi	σ ±	Elongation at Yield, %	σ ±	Proportional Limit, psi	σ ±	Modulus of Elasticity, psi	σ ±	Work at Yield ft lbs	σ ±
Original Control	0	0.0	12,150	1060	1.3	0.1	12,150	1060	1.3	0.1	5050	453	1,216,[illegible]	41,300	7.6	1.9
Room Control	12	−0.9	12,000	652	1.4	0.1	12,350	659	1.4	0.1	6450	212	1,[illegible]	47,[illegible]		
50°C Control	12	−2.1	12,270	455	1.3	0.1	12,270	455	1.5	0.1	7010	[illegible]	1,120,[illegible]	[illegible]		
In contact with OGK at 50°C	12	−2.3	12,9[illegible]	651	1.4	0.1	12,[illegible]	[illegible]	1.4	0.1	[illegible]	[illegible]	1,[illegible]	40,[illegible]		
In contact with Oil at 5?°C	12	−2.0	13,10[illegible]	1091	1.4	0.2	13,1[illegible]	1091	1.4	0.2	[illegible]	16[illegible]	1,260,[illegible]	41,[illegible]		
In contact with M2 at 50°C	12	−2.6	12,540	761	1.1	0.1	12,[illegible]	[illegible]	1.3	0.1	67[illegible]	47[illegible]	1,17[illegible]	37,[illegible]		
In contact with M7 at 5?°C	12	−2.4	12,[illegible]	6[illegible]	1.4	0.1	12,8[illegible]	680	1.4	0.1	[illegible]	2[illegible]	1,115,[illegible]	[illegible]		
In contact with M3 at [illegible]	12	−2.7	12,9[illegible]	635	1.4	0.1	12,9[illegible]	635	1.4	0.1	6[illegible]	435	1,2[illegible]	52,[illegible]		
In contact with M[illegible] at 5?°C	12	−2.2	12,8[illegible]	423	1.4	0.5	12,8[illegible]	423	1.4	[illegible]	[illegible]	[illegible]	1,[illegible]	[illegible]		
In contact with M13 at 5?°C	12	−2.2	12,9[illegible]	5[illegible]	1.4	0.1	12,[illegible]	5[illegible]	1.4	0.1	6[illegible]	4[illegible]	1,15[illegible]	[illegible]		
In contact with T1? at 5?°C	12	−2.3	12,[illegible]	124[illegible]	1.3	0.2	12,[illegible]	12[illegible]	1.3	0.2	6[illegible]	[illegible]	1,1[illegible]	[illegible]		
In contact with T18 at 5?°C	12	−2	13,1[illegible]	632	1.4	0.1	13,1[illegible]	6[illegible]	1.4	0.1	[illegible]	403	1,1[illegible]	[illegible]		
In contact with T1? at 5?°C	12	−2.3	13,2[illegible]	7[illegible]	1.4	0.1	13,2[illegible]	743	1.4	0.1	[illegible]	262	1,[illegible]	[illegible]		

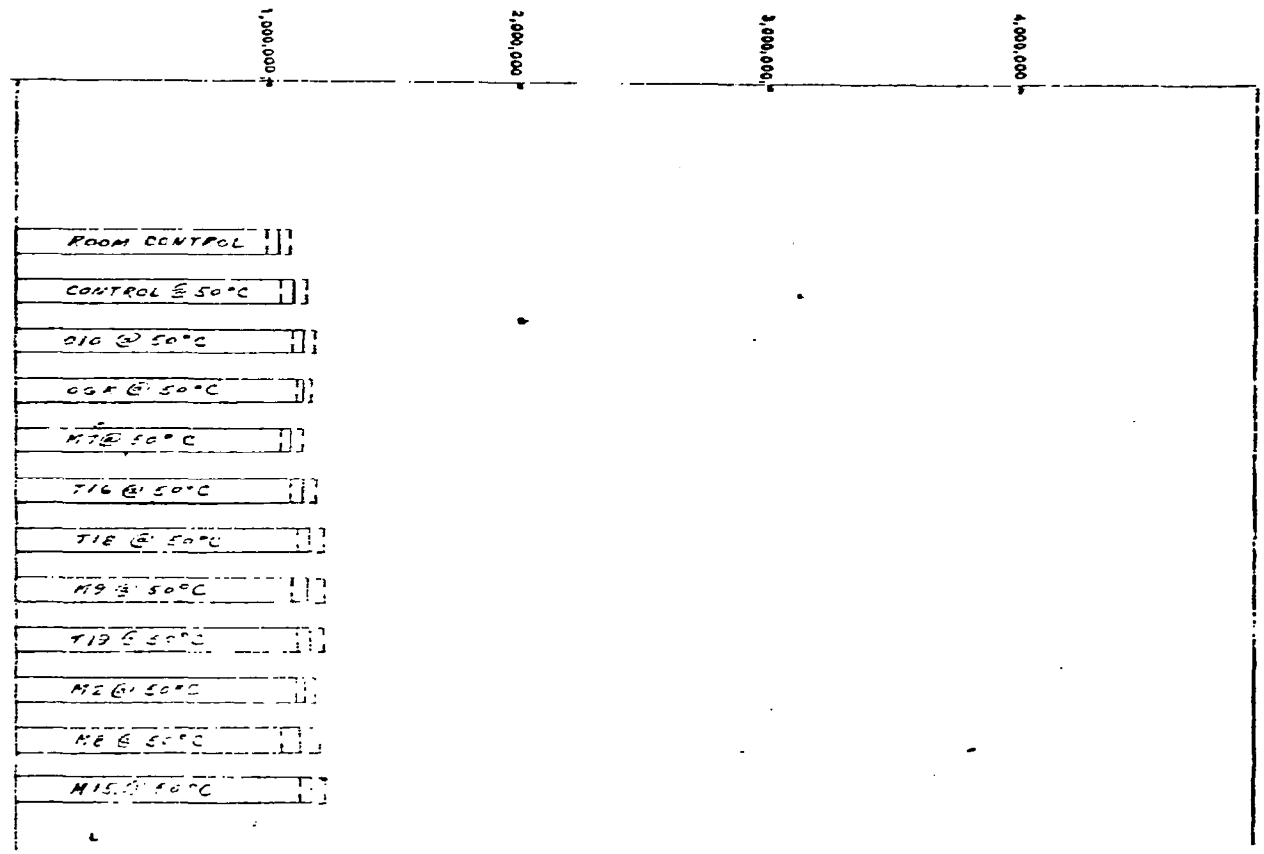

Fig 21 Impact Strength of Textolite 2029 (Grade XXX) After 12-Months With Various Propellants. (Range of standard deviation is indicated by dotted lines.)

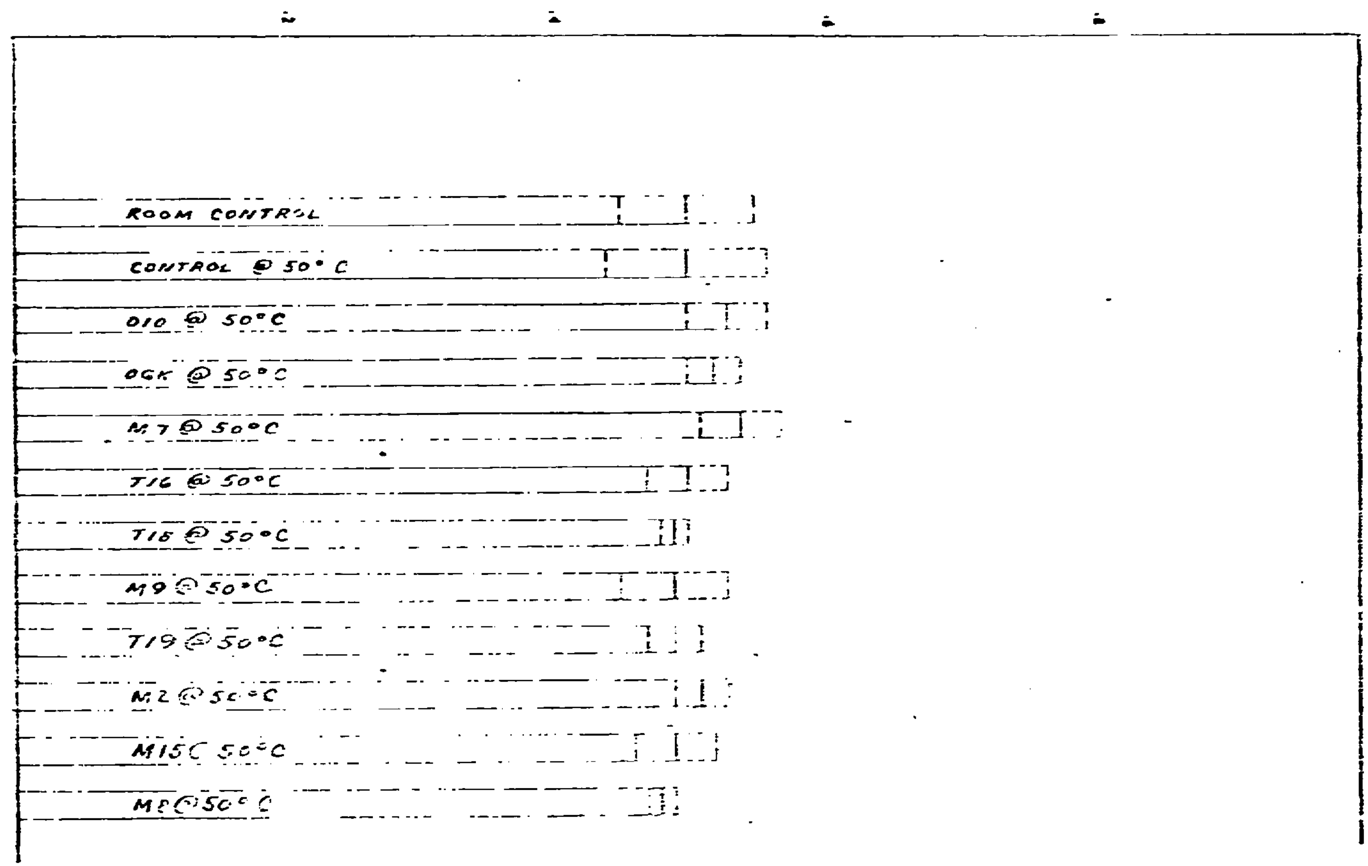

Fig 22 Modulus of Textolite 2029 (Grade XXX) After 12 Months Storage With Various Propellants

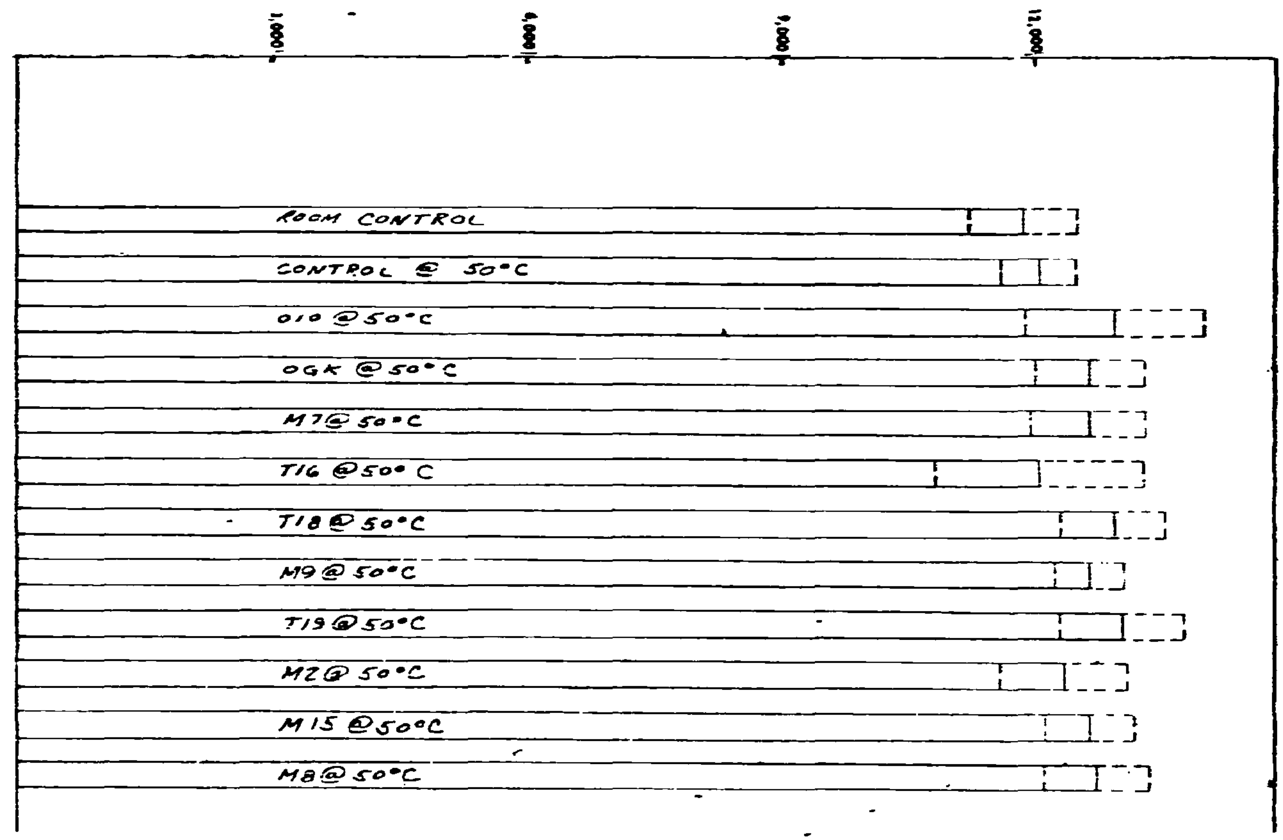

Fig 23 Maximum Tensile Strength of Textolite 2029 (Grade XXX) After 12 Months Storage With Various Propellant

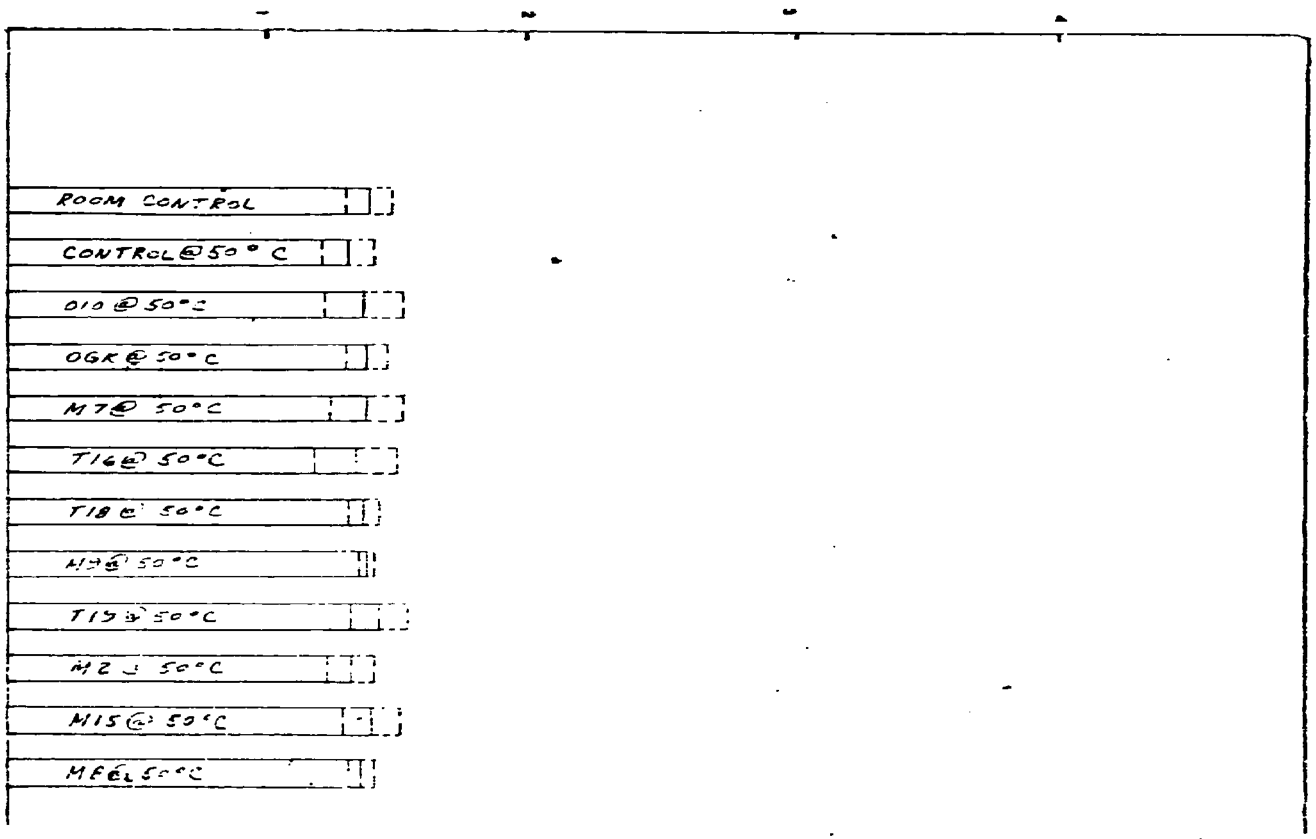

Fig 24 Percent Elongation at Break of Textolite 2029 (Grade XXX) After 12 Months Storage With Various Propellants

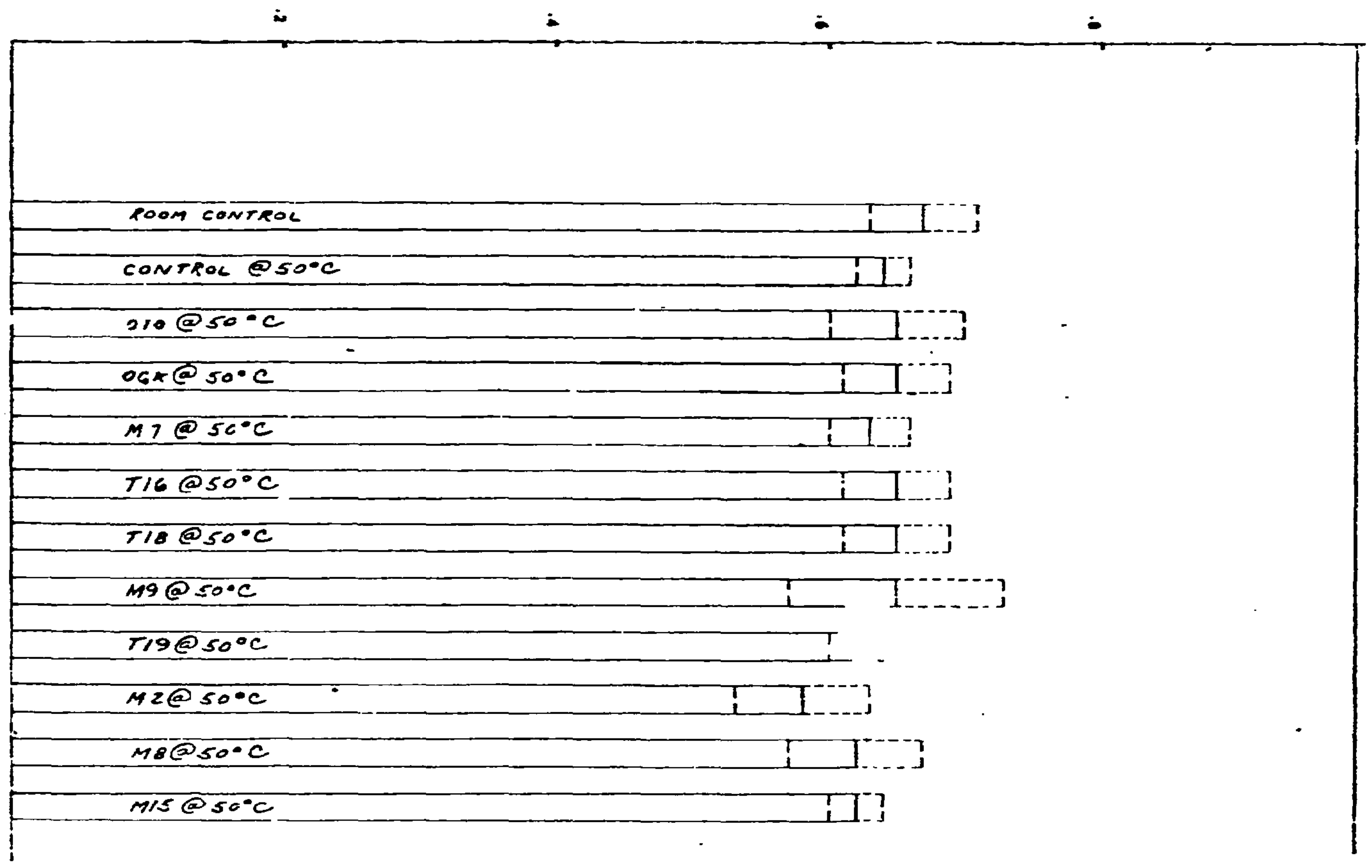

Fig 25 Impact Strength of Textolite 1838 (Grade P) After 12 Months Storage With Various Propellants

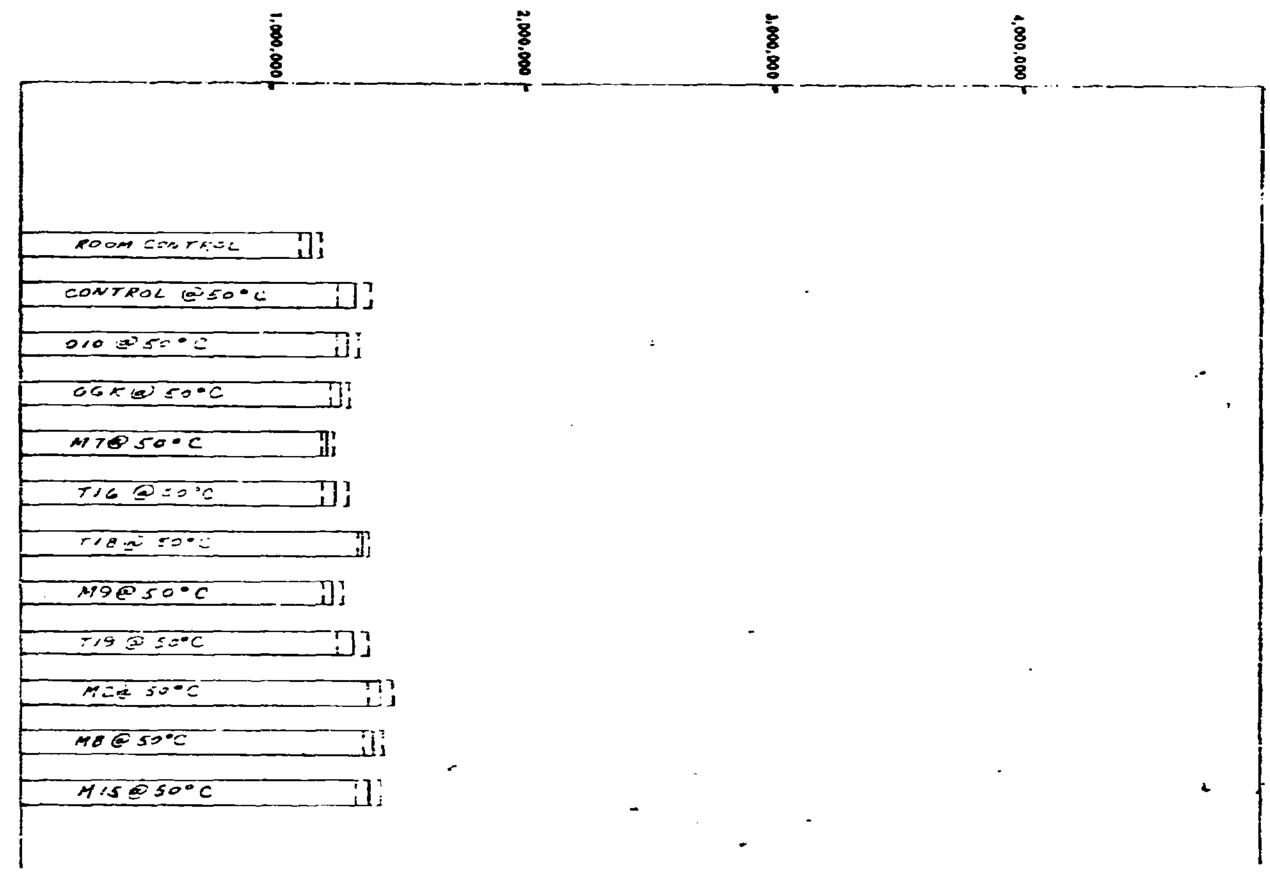

Fig 26 Modulus of Textolite 1838 (Grade P) After 12 Months Storage With Various Propellants

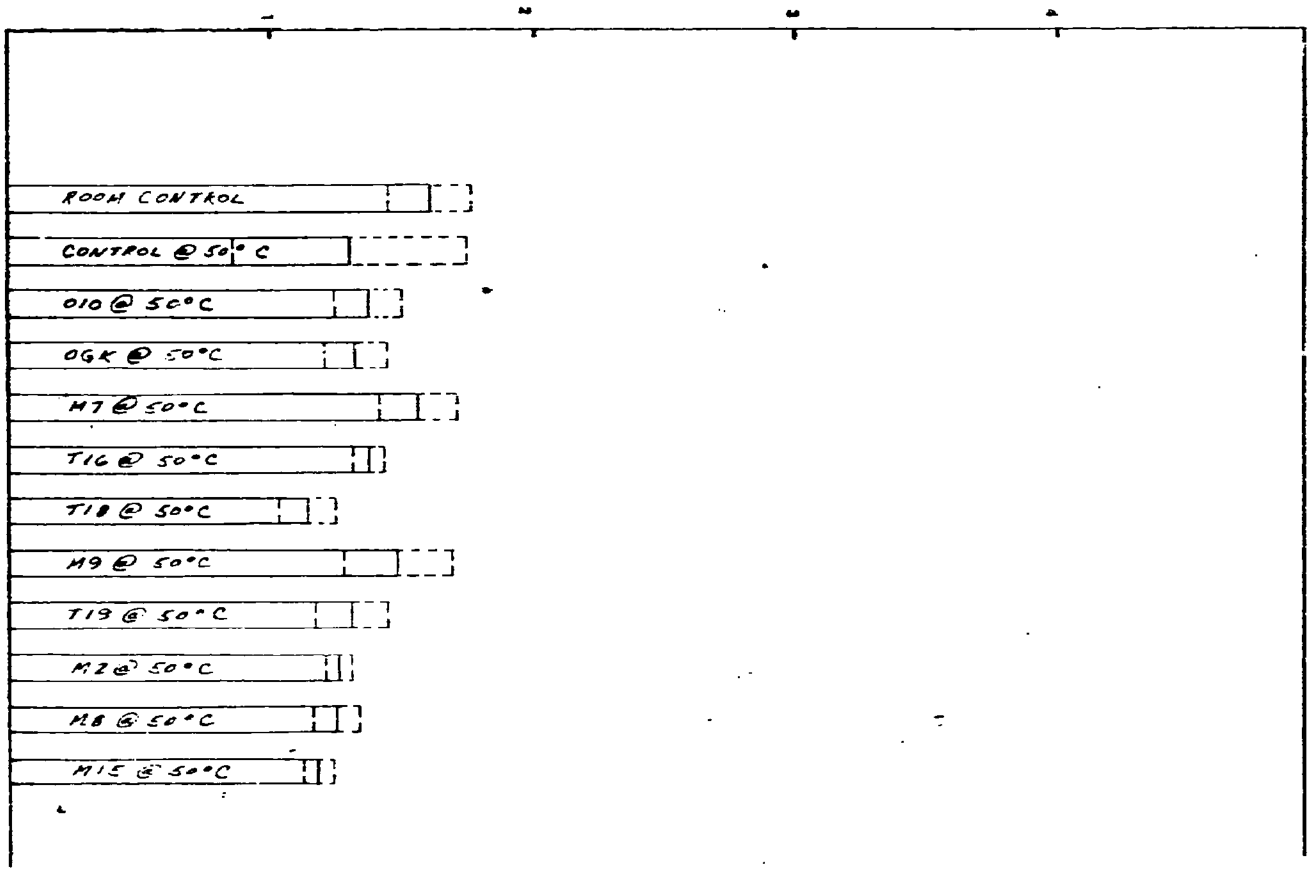

Fig 27 Percent Elongation at Break of Textolite 1838 (Grade P) After 12 Months Storage With Various Propellants

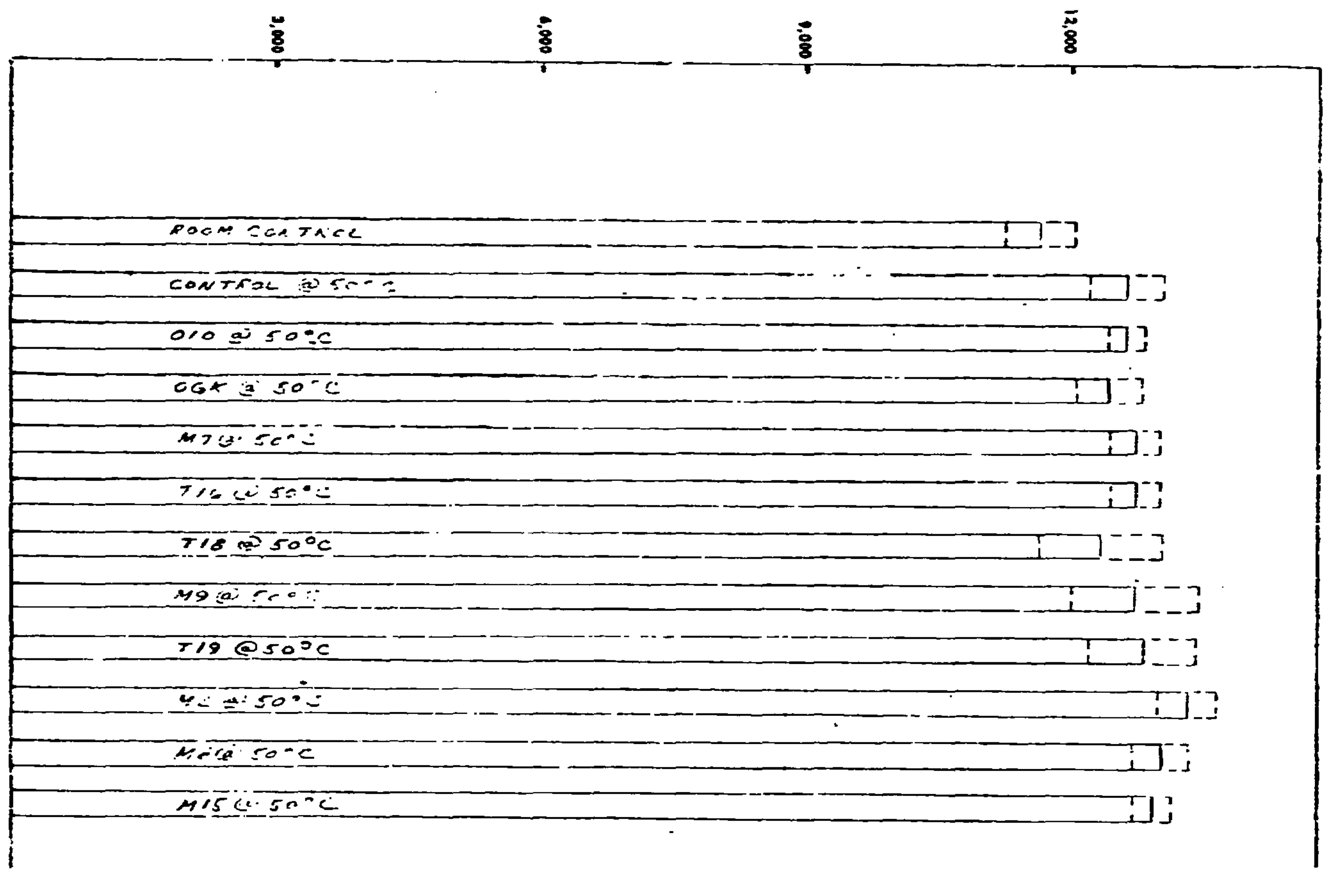

Fig 28 Maximum Tensile Strength of Textolite 1838 (Grade P) After 12 Months Storage With Various Propellants

Section 8

POLYESTERS AND ALKYDS

In the commercial or plastics field, the term polyester generally refers to an unsaturated polyester base resin dissolved in a polymerizable monomer. For practical purposes, an oil-modified polyester is usually referred to as alkyd or alkyd-coating resin. Polyesters prepared from saturated compounds are called saturated polyesters.

A survey of relevant data discloses the following salient points about polyester compatibility:

1. Polyester plastics do not in general affect seriously the reactivity of a variety of explosives and propellants.

2. Unsaturated rigid polyesters generally gain less than 10% in weight when stored in contact with explosives or propellants containing nitroglycerine or TNT.

3. Unsaturated flexible polyesters gain weight continuously when in direct contact with explosives or propellants containing nitroglycerine or TNT.

4. Unsaturated flexible polyesters are more susceptible than unsaturated rigid polyesters to attack by explosives and propellants containing nitroglycerine or TNT.

5. Saturated polyesters do not significantly affect the reactivity of explosives and propellants.

TABLE 54

Vacuum Stability Test Results for Polyesters

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Amberlac 292 with Paraplex G-50	PBX	100	0.55	0.23	0.48	0.00	56-M2-8	None
Amberlac 292	Black powder	100	0.35	0.51	0.64	0.00	56-M2-77	None
	Tetryl	100	0.35	0.45	1.39	0.50	56-M2-77	Negligible
	Composition B	100	0.35	0.17	0.40	0.00	56-M2-77	None
Bakelite-BRS-136-	HBX-6	100	0.12	0.66	1.29	0.51	56-M2-82	Negligible
Bakelite-BRS-147	Composition A-3	100	0.13	0.22	0.25	0.00	56-M2-24	None
	Cyclotol 75/25	100	0.13	0.28	0.32	0.00	56-M2-24	None
	HBX-6	100	0.58	0.66	1.77	0.53	56-M2-73	Negligible
	Composition B	100	0.12	0.28	0.54	0.14	55-H1-2298	Negligible
Glidpol No. 1017 with cobalt naphthenate and Lupersol DDM	Composition B	100	0.22	0.28	0.34	0.00	56-M2-35	None
Gray Glid-Iron No. 6043	Black powder	100	0.38	0.79	0.91	0.00	57-TM2-23	None
	Composition B	100	0.38	0.24	0.37	0.00	57-TM2-23	None
	Tetryl	100	0.38	0.49	0.52	0.00	57-TM2-23	None
	TNT	100	0.38	0.85	0.29	0.00	57-TM2-23	None
	Tritonal 80/20	100	0.38	0.10	0.40	0.00	57-TM2-23	None
Gray Glid-Iron No. 6130	Black Powder	100	0.21	0.79	0.47	0.00	57-TM2-23	None
	Comp B	100	0.21	0.24	0.47	0.02	57-TM2-23	Negligible
	Tetryl	100	0.21	0.49	0.48	0.00	57-TM2-23	None
	TNT	100	0.21	0.85	0.32	0.00	57-TM2-23	Negligible
	Tritonal 80/20	100	0.21	0.10	0.44	0.13	57-TM2-23	None

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
H-35	Composition B	100	0.21	0.20	0.27	0.00	55-M2-54	None
	Tetryl	100	0.21	0.42	0.42	0.00	55-M2-54	None
	TNT	100	0.21	0.07	0.13	0.00	55-M2-54	None
H-00	Composition B	100	0.16	0.20	0.30	0.00	55-M2-54	None
	Tetryl	100	0.16	0.42	0.43	0.00	55-M2-54	None
	TNT	100	0.16	0.07	0.10	0.00	55-M2-54	None
Isolite No. 2112	Composition B	100	0.46	0.20	0.96	0.30	54-H1-1447	Negligible
Perstop	Tetryl	100	0.46	0.22	0.54	0.00	54-H1-1447	None
Laminac No. 4116	Black powder	100	0.39	0.53	0.69	0.00	136517	None
	Composition B	100	0.39	0.31	0.50	0.00	136517	None
	Cyclotol 75/25	100	0.24	0.36	0.37	0.00	53-M2-81	None
	JPN	100	0.42	2.51	2.10	0.00	53-M2-4	None
	MRP	100	0.42	1.99	1.82	0.00	53-M2-4	None
	MOX-2B	100	1.00	0.16	0.42	0.00	55-M2-12	None
	M-1	90	0.22	0.30	0.56	0.04	136517	Negligible
	M-6	90	0.22	1.71	1.73	0.00	136517	None
	M-7	90	0.42	2.16	2.12	0.00	52-M2-92	None
	OIO	90	0.10	0.73	0.57	0.00	53-M2-90	None
	RDX	100	0.25	0.48	0.23	0.00	52-M2-131	None
	T-2	100	0.42	6.37	3.48	0.00	53-M2-4	None
	T-6	90	0.21	4.15	2.73	0.00	54-M2-46	None
	T-8	100	0.42	2.13	0.92	0.00	53-M2-4	None
	TNT	100	0.14	0.06	0.16	0.00	55-M2-31	None
	Tetryl	100	0.43	1.10	0.57	0.00	136521	None

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Laminac No. 4125	JPN	100	0.12	2.51	2.14	0.00	53-M2-4	None
	MRP	100	0.12	1.99	1.88	0.00	53-M2-4	None
	T-2	100	0.12	6.37	4.87	0.00	53-M2-4	None
	T-8	100	0.12	2.13	2.02	0.00	53-M2-4	None
Laminac 4116 with Vinylite MA24-18	Bullseye No. 2	90	0.76	1.94	1.89	0.00	52-HI-2023	None
Laminac No. 4128	Composition B	100	0.08	0.34	0.33	0.00	53-M2-59	None
	Tetryl	100	0.08	0.41	0.33	0.00	53-M2-59	None
Laminac No. 4134	Black powder	100	0.34	0.35	0.82	0.13	53-M2-26	Negligible
	Composition B	100	0.34	0.35	0.49	0.00	53-M2-26	None
	JPN	100	0.14	2.51	2.66	0.01	53-M2-4	Negligible
	M-1	90	0.16	0.29	0.37	0.00	53-M2-26	None
	MRP	100	0.14	1.99	1.82	0.00	53-M2-4	None
	M6	90	0.05	1.71	1.58	0.08	136517	Negligible
	M-7	90	0.19	2.16	2.01	0.00	52-M2-111	None
	RDX	100	0.24	0.48	0.25	0.00	52-M2-131	None
	T-2	100	0.14	6.37	6.32	0.00	53-M2-4	None
	T-8	100	0.14	2.13	2.38	0.11	53-M2-4	None
	Tetryl	100	0.34	0.44	0.86	0.08	53-M2-26	Negligible
	TNT	100	0.14	0.06	0.16	0.00	55-M2-31	None

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Mylar Tape No. 7300	Black powder	100	0.10	0.44	0.55	0.01	56-M2-26	Negligible
	M-10	100	0.10	1.97	1.96	0.00	56-M1-572	None
	M-17	100	0.10	2.51	2.40	0.00	56-M1-572	None
	T-18	90	0.00	3.30	3.23	0.00	54-M2-54	None
	Tetryl	100	0.10	0.26	0.27	0.00	54-M2-54	None
	TNT	100	0.10	0.05	0.15	0.00	56-M2-26	None
Metaseal 19V5	Composition B	100	0.01	0.31	0.33	0.01	53-M2-8	Negligible
	TNT	100	0.01	0.08	0.13	0.04	53-M2-8	Negligible
Mylar	Black powder	100	0.09	0.64	0.67	0.00	56-H1-572	None
	M2	100	0.06	1.27	2.65	1.32	56-H1-572	Negligible
	M-6	100	0.06	6.66	5.68	0.00	56-H1-572	None
Paraplex P-13	JPN	100	0.05	2.51	2.15	0.00	53-M2-4	None
	MRP	100	0.05	1.99	1.79	0.00	53-M2-4	None
	T-2	100	0.05	6.37	5.97	0.00	53-M2-4	None
	T-8	100	0.05	2.13	2.06	0.00	53-M2-4	None
Paraplex P-43	Composition B	100	0.09	0.39	0.33	0.00	52-M2-60	None
	Composition C-3	100	0.09	1.12	1.10	0.00	52-M2-60	None
	JPN	100	0.18	2.51	4.30	1.61	53-H2-4	Very slight
	MRP	100	0.18	1.99	1.91	0.00	53-H2-4	None
	PETN	100	0.09	0.30	0.21	0.00	52-M2-60	None
	Pentolite 50/50	100	0.09	1.84	1.83	0.00	52-M2-60	None
	RDX	100	0.09	0.42	0.31	0.00	53-M2-60	None
	T-2	100	0.18	6.37	4.98	0.00	53-M2-4	None
	T-8	100	0.18	2.13	2.02	0.00	53-M2-4	None

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Paraplex P-43/ P-13 85/15%	Composition C-2/RDX	100	0.09	0.62	0.28	0.00	53-M2-60	None
	Composition C-3/RDX	100	0.09	1.32	0.31	0.00	53-M2-60	None
	Composition C-4/RDX	100	0.09	0.39	0.54	0.00	53-M2-60	None
	RDX	100	0.09	0.42	1.16	0.00	53-M2-60	None
P-43 and P-13 75/25 %	GIO	90	0.08	0.73	0.55	0.00	53-M2-90	None
Plaskon No. 951	Mox-2B	100	0.22	0.16	0.17	0.00	55-M2-53	None
	RDX	100	0.22	0.34	0.34	0.00	55-M2-53	None
Plaskon Alkyd No. 442	Composition C-2/RDX	100	0.39	0.56	0.70	0.00	53-M2-57	None
	Composition C-3/RDX	100	0.39	1.19	1.24	0.00	53-M2-57	None
	Composition C-4/RDX	100	0.39	0.32	0.16	0.00	53-M2-57	None
	Mox-2B	100	0.17	0.30	0.35	0.00	53-H1-1436	None
	RDX	100	0.39	0.43	0.26	0.00	53-M2-57	None
Bakelite QRS-136	Black powder	100	0.37	0.35	0.89	0.17	53-M2-26	Negligible
	Composition B	100	0.37	0.35	0.68	0.00	53-M2-26	None
	M-1	90	0.28	0.29	0.38	0.00	53-M2-26	None
	M-2	90	0.27	2.73	0.62	0.00	52-M2-153	None
	TNT	100	0.09	0.23	0.29	0.00	54-H1-2099	None
	Tetryl	100	0.37	0.44	1.04	0.23	53-M2-26	Negligible

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Bakelite QRS-147	Composition B	100	0.65	0.27	0.77	0.00	52-M2-100	None
	$BaCrO_4/KClO_4/$ Zr-Ni	100	0.61	0.06	0.33	0.00	52-M2-166	None
	OGK	90	2.38	1.19	2.65	0.00	53-M2-20	None
	RDX	100	0.88	0.35	0.83	0.00	52-M2-132	None
	Swiss Propellant	90	0.74	0.73	1.87	0.40	52-M2-174	Negligible
	T-6	90	0.35	4.15	3.83	0.00	54-M2-46	None
	T-16	90	2.38	3.21	5.62	0.00	53-M2-20	None
	Tetryl	100	0.88	0.42	1.52	0.22	52-M2-132	Negligible
	TNT	100	0.61	0.07	0.49	0.00	52-M2-166	None
Polyplastex MC	Composition B	100	0.21	0.24	0.41	0.00	53-M2-14	None
	TNT	100	0.21	0.07	0.29	0.01	53-M2-14	Negligible
Selectron No. 5003	JPN	100	0.61	2.51	3.16	0.04	53-M2-4	Negligible
	MRP	100	0.61	1.99	3.51	0.91	53-M2-4	Negligible
	T-2	100	0.61	6.37	5.84	0.00	53-M2-4	None
	T-8	100	0.61	2.13	2.94	0.20	53-M2-4	Negligible
	T-16	90	0.35	3.66	4.57	0.56		
Selectron No. 5003 and accelerator	JPN	100	0.21	2.51	2.98	0.26	53-M2-4	Negligible
	MRP	100	0.21	1.99	3.57	1.37	53-M2-4	Very slight
	T-2	100	0.21	6.37	7.98	0.40	53-M2-4	Negligible
	T-8	100	0.21	2.13	3.27	0.93	53-M2-4	Negligible

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Selectron No. 5081	Composition B	100	0.28	0.25	0.29	0.00	54-M2-24	None
Atlas Glass-filled Polyester	Composition B	100	0.16	0.32	0.35	0.00	53-M2-21	None
	Pentolite 50/50	100	0.14	1.82	1.82	0.00	53-M2-17	None
Dryply No. 81 cured	Composition B	100	0.24	0.34	0.29	0.00	57-TM2-4	None
	HBX-6	100	0.24	0.64	0.51	0.00	57-TM2-4	None
Dryply No. 81 uncured	Composition B	100	0.13	0.34	0.51	0.04	57-TM2-4	Negligible
	HBX-6	100	0.13	0.64	0.87	0.10	57-TM2-4	Negligible
Glaskyd No. 1901	RDX	100	0.25	0.32	0.18	0.00	55-HI-620	None
Laminated Fiberglas	Composition B	100	0.28	0.24	0.27	0.00	56-M2-25	None
	T-131	90	0.28	0.94	0.78	0.00	56-M2-25	None
	Tetryl	100	0.28	0.49	0.29	0.00	54-HI-1734	None
	Tetrytol	100	0.28	1.76	3.50	1.46	54-HI-1734	Very slight
	TNT	100	0.28	0.32	0.25	0.00	54-HI-1734	None
	Composition 4187	90	0.28	0.94	0.78	0.00	55-HI-1111	None
MR-25C	JPN	100	0.20	2.51	2.50	0.00	53-M2-4	None
	MRP	100	0.20	1.99	2.29	0.00	53-M2-4	None
	T-2	100	0.20	6.37	5.20	0.00	53-M2-4	None
	T-8	100	0.20	2.13	2.48	0.00	53-M2-4	None

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Polyester, glass mat	Composition B	100	0.13	0.33	0.59	0.13	52-M2-163	Negligible
MX-172	Composition B	100	0.13	0.21	0.26	0.00	56-M2-49	None
	TNT	100	0.13	0.06	0.13	0.00	56-M2-49	None
Polyester Fiberglas	Composition B	100	0.08	0.34	0.33	0.00	53-H1-498	None
	Tetryl	100	0.08	0.41	0.33	0.00	53-H1-498	None
Cycopol S-1025	Fuze powder	100	0.50	0.37	0.54	0.00	53-M2-7	None
with aluminum powder	Fuze powder	100	0.89	0.36	0.56	0.00	53-M2-87	None
Cycopol S-1025	RDX	100	0.28	0.39	0.32	0.00	53-M2-89	None
	Tetryl	100	0.30	0.28	1.16	0.58	53-M2-89	Negligible
Styrenated Alkyd	Amatol	100	0.58	0.41	6.84	5.85	56-M2-12	Excessive
MF882	M-7	90	0.75	2.13	1.82	0.00	56-M2-12	None
	M-15	90	0.75	1.98	2.76	0.03	56-M2-12	Negligible
	Tetryl	100	0.58	0.45	5.22	4.19	56-M2-12	Moderate
Acrylated Alkyd	Amatol	100	0.58	0.41	5.24	4.25	56-M2-12	Moderate
MF-881	M-7	90	0.71	2.13	1.92	0.00	56-M2-12	None
	M-15	90	0.71	1.98	2.11	0.00	56-M2-12	None
	Tetryl	100	0.58	0.45	0.85	0.00	56-M2-12	None

TABLE 54 (Continued)

Polymeric Material	Explosive	Test Temperature °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Picatinny Report No.	Remarks
Phthalic drying oil Alkyd MF-884	Amatol	100	0.55	0.41	5.33	4.37	56-M2-12	Moderate
	M-7	90	0.70	2.13	1.32	0.00	56-M2-12	None
	M-15	90	0.70	1.98	1.88	0.00	56-M2-12	None
	Tetryl	100	0.55	0.45	1.63	0.63	56-M2-12	Negligible
Vinyl toluene Alkyd MF-883	Amatol	100	0.73	0.41	5.28	4.14	56-M2-12	Moderate
	M-7	90	1.06	2.13	1.94	0.00	56-M2-12	None
	M-15	90	1.06	1.98	2.03	0.00	56-M2-12	None
	Tetryl	100	0.73	0.45	1.37	0.19	56-M2-12	Negligible
Allite	JPN	90	0.39	2.36	2.10	0.00	53-M2-4	None
	MRP	90	0.39	1.71	1.68	0.00	53-M2-4	None
	T-2	90	0.39	7.22	7.69	0.08	53-M2-4	Negligible
	T-8	90	0.39	2.04	2.05	0.00	53-M2-4	None

TABLE 55

Percent Change in Weight of Polyesters after Storage

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight of Control	% Weight of Contact	Picatinny Report No.
Bakelite–BRS-147 Rigid	Cyclotol 75-25	28	71	+0.06	+0.16	56-M2-24
	Composition A-3	28	76	+0.06	–0.25	56-M2-24
	HBX-6	28	71	–0.19	+0.69	56-M2-73
Glidpol No. 1017	Composition B	24	71	–0.24	–0.57	56-M2-35
Gray Glid-Iron No. 6043	Black powder	52	76	+0.70	–1.90	57-TM2-23
	Composition B	52	71	+0.70	+8.30	57-TM2-23
	Tetryl	52	76	+0.70	+18.30	57-TM2-23
	TNT	52	71	+0.70	+37.90	57-TM2-23
	Tritonal 80/20	52	76	+0.70	+19.70	57-TM2-23
Gray Glid-Iron No. 6130	Black powder	52	76	+0.20	–1.00	57-TM2-23
	Composition B	52	71	+0.20	+9.90	57-TM2-23
	Tetryl	52	76	+0.20	+0.50	57-TM2-23
	TNT	52	71	+0.20	+10.70	57-TM2-23
	Tritonal 80/20	52	76	+0.20	+7.50	57-TM2-23
H-00	Composition B	24	76	+0.16	+6.04	55-M2-54
	Tetryl	24	76	+0.16	+0.51	55-M2-54
	TNT	24	76	+0.16	+8.59	55-M2-54
H-35	Composition B	24	76	–0.05	+5.13	55-M2-54
	Tetryl	24	76	–0.05	+0.08	55-M2-54
	TNT	24	76	–0.05	+6.52	55-M2-54

TABLE 55 (Continued)

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight of Control	% Weight of Contact	Picatinny Report No.
Laminac No. 4116	JPN	26	50	+0.27	+5.71	53-M2-4
rigid	MRP	26	50	+0.27	+4.01	53-M2-4
	M-7	26	50	+0.35	+3.88	52-M2-92
	OIO	14	50	−0.04	+0.85	53-M2-90
	T2	26	50	+0.27	+4.71	53-M2-4
	T-8	26	50	+0.27	+2.85	53-M2-4
	TNT	12	76	−6.72	+35.8	55-M2-31
Laminac No. 4125	JPN	26	50	+0.30	+5.92	53-M2-4
rigid	MRP	26	50	+0.30	+3.21	53-M2-4
	T-2	26	50	+0.30	+3.16	53-M2-4
	T-8	26	50	+0.30	+1.91	53-M2-4
Laminac No. 4128	Composition B	14	76	−0.34	+0.50	53-M2-59
rigid	Tetryl	14	76	−0.34	−0.45	53-M2-59
Laminac No. 4134	JPN	26	50	+0.43	+25.40	53-M2-4
flexible	MRP	26	50	+0.43	+22.40	53-M2-4
	M-7	26	50	+0.46	+29.30	52-M2-111
	T-2	26	50	+0.43	+27.70	53-M2-4
	T-8	26	50	+0.43	+20.20	53-M2-4
Metaseal 19V5	Composition B	14	76	−0.41	+9.00	53-M2-8
	TNT	14	76	−0.41	+11.50	53-M2-8

TABLE 55 (Continued)

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight of Control	% Weight of Contact	Picatinny Report No.
Paraplex P-13 flexible	JPN	26	50	−0.37	+45.20	53-M2-4
	MRP	26	50	−0.37	+28.00	53-M2-4
	T-2	26	50	−0.37	+32.30	53-M2-4
	T-8	26	50	−0.37	+31.40	53-M2-4
Paraplex P-43 rigid	Composition B	8	76	−0.06	+1.35	52-M2-60
	Composition C-3	8	76	−0.06	+8.26	52-M2-60
	JPN	26	50	+0.14	+3.17	53-M2-4
	MRP	26	50	+0.14	+3.97	53-M2-4
	PETN	8	76	−0.06	−0.33	52-M2-60
	Pentolite 50/50	8	76	−0.06	+1.39	52-M2-60
	T-2	26	50	+0.14	+2.53	53-M2-4
	T-8	26	50	+0.14	+2.43	53-M2-4
Paraplex P-43 / P-13 85/15%	Composition C-2/RDX	12	76	−0.07	+14.70	53-M2-60
	Composition C-3/RDX	12	76	−0.07	+14.20	53-M2-60
	Composition C-4/RDX	12	76	−0.07	−0.07	53-N2-60
	RDX	12	76	−0.07	−0.34	53-M2-60
P-43 and P-13 75/25%	OIO	14	50	−0.11	−0.08	53-M2-90
Plaskon Alkyd No. 442	Composition C-2/RDX	10	76	−0.72	+2.57	53-M2-57
	Composition C-3/RDX	10	76	−0.72	+2.60	53-M2-57
	Composition C-4/RDX	10	76	−0.72	−0.59	53-M2-57
	RDX	10	76	−0.72	−0.64	53-M2-57

TABLE 55 (Continued)

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight of Control	% Weight of Contact	Picatinny Report No.
Bakelite QRS-147	Swiss Propellant	4	50	−0.49	−1.02	52-42-174
Polyplastex MC	Composition B	12	76	−0.29	+0.86	53-M2-14
	TNT	12	76	−0.29	+0.95	53-M2-14
Selectron No. 5003 rigid	JPN	26	50	+0.13	+7.00	53-M2-4
	MRP	26	50	+0.13	+9.19	53-M2-4
	T-2	26	50	+0.13	+5.55	53-M2-4
	T-8	26	50	+0.13	+6.03	53-M2-4
Selectron No. 5003 with accelerator	JPN	26	50	+0.14	+0.59	[illegible]-M2-4
	MRP	26	50	+0.14	+0.25	53-M2-4
	T-2	26	50	+0.14	+0.84	53-M2-4
	T-8	26	50	+0.14	+0.41	53-M2-4
Dryply No. 81 cured	Composition B	40	71	−0.16	+1.90	57-TM2-4
	HBX-6	40	71	−0.16	+1.10	
Laminated Fiberglas with Epon 828 →	T-131	28	50	−1.37	−2.69	56-M2-25
	T-131	24	50	−0.09	−0.08	56-M2-23
"MR" 25C	JPN	26	50	−0.02	+4.24	53-M2-4
	MRP	26	50	−0.02	+2.59	53-M2-4
	T-2	26	50	−0.02	+4.07	53-M2-4
	T-8	26	50	−0.02	+1.99	53-M2-4

TABLE 55 (Continued)

Polymer	Explosive	Storage, Weeks	Temperature, °C	% Weight of Control	% Weight of Contact	Picatinny Report No.
MX-172	Composition B	24	71	−0.63	+2.38	56-M2-49
	TNT	24	71	−0.63	+2.65	56-M2-49
Allite	JPN	26	50	−0.66	+1.12	53-M2-4
	MRP	24	50	−0.66	+0.16	53-M2-4
	T-2	24	50	−0.66	+0.25	53-M2-4
	T-8	24	50	−0.66	−0.03	53-M2-4

TABLE 56

Effects of Storage on Physical Properties of Polyesters

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Effects on the Polymer	Picatinny Report No.
Amberlac No. 292 with Paraplex G-50	PBX	24	76	No effect	56-M2-8
Bakelite—BRS-147	Cyclotol 75/25	28	76	Slight adhesion with surface roughening	56-M2-24
	Composition A-3	28	76	Slight darkening	56-M2-24
Glidpol No. 1017 Cobalt naphthenate and Lupersol DDM	Composition B	24	71	Darkened slightly	56-M2-35
H-00 unfilled	Composition B	24	76	Turned brown and brittle	55-M2-54
	Tetryl	24	76	Turned amber and brittle	55-M2-54
	TNT	24	76	Turned brown and brittle	55-M2-54
H-35 filled	Composition B	24	76	Turned brittle and darkened	55-M2-54
	Tetryl	24	76	Turned brittle and darkened	55-M2-54
	TNT	24	76	Softens with loss of adhesion	55-M2-54
Laminac No. 4116	JPN	26	50	Yellowed, more impact resistance	53-M2-4
	MRP	26	50	Yellowed, more impact resistance, tacky	53-M2-4
	T-2	26	50	Yellowed, more impact resistance	53-M2-4
	TNT	12	76	Blackened, deteriorated	55-M2-31

TABLE 56 (Continued)

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Effects on the Polymer	Picatinny Report No.
Laminac No. 4125	JPN	26	50	More impact resistance	53-M2-4
	MRP	26	50	More impact resistance	53-M2-4
	T-2	26	50	More impact resistance	53-M2-4
	T-8	26	50	More impact resistance	53-M2-4
Laminac No. 4134	Black powder	8	76	Turned orange, lost adhesion	56-M2-26
	Composition B	8	76	Decomposed	56-M2-26
	JPN	26	50	Turned yellow	53-M2-4
	M-1	8	50	Softened, lost adhesion	56-M2-26
	MRP	26	50	Turned amber	53-M2-4
	T-2	26	50	Turned amber	53-M2-4
	T-8	26	50	Turned amber	53-M2-4
	Tetryl	8	76	Turned orange, lost adhesion	53-M2-26
Mylar Tape No. 7300	Black powder	24	76	Lost adhesion, deteriorated	56-M2-26
	Tetryl	24	76	Lost adhesion, deteriorated	56-M2-26
	TNT	24	71	Lost adhesion, deteriorated	56-M2-26
Paraplex P-13	JPN	26	50	No change	53-M2-4
	MRP	26	50	No change	53-M2-4
	T-2	26	50	No change	53-M2-4
	T-8	26	50	No change	53-M2-4
Paraplex P-43	JPN	26	50	Becomes tacky, more impact resistance	53-M2-4
	MRP	26	50	Becomes tacky, more impact resistance	53-M2-4

TABLE 56 (Continued)

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Effects on Polymer	Picatinny Report No.
Paraplex P-43	T-2	26	50	Becomes tacky, more impact resistance	53-M2-4
	T-8	26	50	Becomes tacky, more impact resistance	53-M2-4
Bakelite QRS-136	Black powder	8	76	Turned amber	53-M2-26
	Composition B	8	76	Decomposed	53-M2-26
	M-1	8	50	Lost adhesion	53-M2-26
	M-2	8	50	Turned orange	52-M2-153
	Tetryl	8	76	Turned orange	52-M2-26
Bakelite QRS-147	Composition B	8	76	Softened, turned brown	52-M2-100
	$BaCrO_4/KClO_4/Zr$-Ni	8	76	No change	52-M2-166
	Tetryl	8	76	No change	52-M2-132
	T-16	8	50	No change	53-M2-20
	TNT	8	76	Became slightly tacky	52-M2-166
Selectron No. 5003	JPN	26	50	Became tacky, turned yellow	53-M2-4
	MRP	26	50	Became tacky, turned yellow	53-M2-4
	T-2	26	50	Became tacky, turned yellow	53-M2-4
	T-8	26	50	Became tacky, turned yellow	53-M2-4
	T-16	8	50	Softened, became tacky, lost adhesion	52-M2-49

TABLE 56 (Continued)

Material	Explosive or Propellant	Storage, Weeks	Temperature, °C	Effects on Polymer	Picatinny Report No.
Selectron No. 5003	JPN	26	50	More impact resistant	53-M2-4
with accelerator	MRP	26	50	More impact resistant	53-M2-4
	T-2	26	50	More impact resistant	53-M2-4
	T-8	26	50	More impact resistant	53-M2-4
Dryply No. 81	Composition B	40	71	Turned light brown	57-TM2-4
cured	HBX-6	40	71	Turned yellow	
Dryply No. 81	Composition B	40	71	Turned light brown	57-TM2-4
uncured	HBX-6	40	71	Turned light brown	57-TM2-4
Laminated Fiberglas	T-131	28	50	Darkened slightly	56-M2-25
MR-25C	JPN	26	50	No effect	53-M2-4
	MRP	26	50	No effect	53-M2-4
	T-2	26	50	No effect	53-M2-4
	T-8	26	50	No effect	53-M2-4
Cycopol S-1025	Fuze powder	8	76	No effect	53-M2-7
Allite	JPN	26	50	No effect	53-M2-4
	MRP	24	50	No effect	53-M2-4
	T-2	24	50	No effect	53-M2-4
	T-8	24	50	No effect	53-M2-4

TABLE 57

100°C Heat Test Results for Polyesters

Material and Weight in gms	Explosive and Weight in gms	1st 48 Hrs gms	1st 48 Hrs %	2nd 48 Hrs gms	2nd 48 Hrs %	Explosion in 100 Hrs	Picatinny Report No.
Amberlac 292	Lead Azide						
0.6	0.6	0.0496	3.38	0.0063	0.52	None	56-M2-77
0.6	—	0.0271	4.51	0.0047	0.78	None	56-M2-77
—	0.6	0.0062	1.03	0.0003	0.06	None	56-M2-77
	Primer Mix—Class 1						
0.6	0.6	0.0343	2.85	0.0059	0.49	None	56-M2-77
0.6	—	0.0271	4.51	0.0047	0.78	None	56-M2-77
—	0.6	0.0017	0.28	0.0060	0.00	None	56-M2-77
Mylar tape	Primer Mix-Nol 130						
0.6	0.6	0.0103	0.85	0.0029	0.24	None	56-H1-572
0.6	—	0.0007	0.11	0.0002	0.03	None	56-H1-572
—	0.6	0.0102	1.70	0.0023	0.38	None	56-H1-572
Glaskyd No. 1901	Lead Azide						
0.6	0.6	0.0087	0.72	0.0005	0.04	None	55-H1-620
0.6	—	0.0032	0.53	0.0002	0.03	None	55-H1-620
—	0.6	0.0065	1.08	0.000	0.00	None	55-H1-620
Cycopol S-1025	Lead Azide						
0.6	0.6	0.0105	0.87	0.0023	0.19	None	53-M2-89
0.6	—	0.0018	0.30	0.0005	0.08	None	53-M2-89
—	0.6	0.0052	0.86	0.0000	0.00	None	53-M2-89

TABLE 57 (Continued)

Material and Weight in gms	Explosive and Weight in gms	1st 48 Hrs gms	1st 48 Hrs %	2nd 48 Hrs gms	2nd 48 Hrs %	Explosion in 100 Hrs	Picatinny Report No.
Cycopol S-1025	Primer Mix F.A.70						
0.6	0.6	0.0077	0.64	0.0014	0.11	None	53-M2-89
0.6	—	0.0018	0.30	0.0005	0.06	None	53-M2-89
—	0.6	0.0012	0.20	0.0011	0.18	None	53-M2-89
	Primer Mix-100						
0.6	0.6	0.0028	0.25	0.0007	0.06	None	53-M2-89
0.6	—	0.0018	0.30	0.0005	0.06	None	53-M2-89
—	0.6	0.0009	0.15	0.000	0.00	None	53-M2-89
	Primer Mix-M-20						
0.6	0.6	0.0030	0.05	0.0022	0.18	None	53-M2-89
0.6	—	0.0000	0.00	0.0011	0.18	None	53-M2-89
—	0.6	0.0019	0.31	0.0004	0.06	None	53-M2-89
	Primer Mix-Nol 130						
0.6	0.6	0.0115	0.95	0.0022	0.18	None	53-M2-89
0.6	—	0.000	0.00	0.0011	0.18	None	53-M2-89
—	0.6	0.0083	1.38	0.0000	0.00	None	53-M2-89
Polyester film tape No. 850	Lead Azide						
0.6	0.6	0.0040		0.0001	0.00	None	56-M2-45
0.6	—	0.0053		0.0000	0.00	None	56-M2-45
—	0.6	0.0091		0.0000	0.00	None	56-M2-45

Section 9

SILICONES

The term silicone is generic for polymers which have a molecular skeleton of silicon-oxygen linkages and several organic groups completing the molecule. Structurally, organopoly-siloxanes may be linear or cross-linked. Depending on the structure, a silicone may be a fluid, an elastomer, or a thermoset resin.

The elastomeric silicones (silicone rubbers) are cross-referenced in the Rubbers and Rubber Derivatives Section of this report.

The data that follows indicates that, in general, the silicone polymers are compatible with explosives and propellants.

TABLE 58

Vacuum Stability Test Results for Silicones

Polymeric Material	Explosive	Test Temperature, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Glass Tubing A-1 (Magneto)	Composition B	100	0.25	0.24	0.47	0.00	None	52-M2-27
Glass Tubing A-1	Composition B	100	0.10	0.24	0.30	0.00	None	52-M2-27
Glass Varnished Tubing	Composition B	100	0.22	0.24	0.35	0.00	None	52-M2-27
Glass Tubing Magneto Varnish	Composition B	100	0.18	0.24	0.35	0.00	None	52-M2-27
Grease Form G	Black powder	100	0.08	0.80	0.60	0.00	None	55-M2-43
	Composition A-3	100	0.08	0.46	0.29	0.00	None	55-M2-43
	Composition B	100	0.08	0.24	1.53	1.21	Very slight	55-M2-43
	Composition C-4	100	0.08	0.23	0.35	0.04	Negligible	55-M2-43
	Pentolite 50/50	100	0.08	1.87	6.17	4.22	Moderate	55-M2-43
	Picratol	100	0.08	0.44	1.03	0.51	Negligible	55-M2-43
	RDX	100	0.08	0.30	0.55	0.17	Negligible	55-M2-43
	Tetryl	100	0.08	0.41	1.09	0.60	Negligible	55-M2-43
	TNT	100	0.08	0.21	2.41	2.12	Slight	55-M2-43
	Tritonal	100	0.08	0.15	2.06	1.83	Very slight	55-M2-43
Grease Form H	Black powder	100	0.13	0.80	0.68	0.00	None	55-M2-43
	Composition A-3	100	0.13	0.46	1.36	0.77	Negligible	55-M2-43
	Composition B	100	0.13	0.24	0.11	0.00	None	55-M2-43
	Composition C-4	100	0.13	0.23	0.18	0.00	None	55-M2-43
	Pentolite 50/50	100	0.13	1.87	2.04	0.04	Negligible	55-M2-43
	Picratol	100	0.13	0.44	0.41	0.00	None	55-M2-43

TABLE 58 (Cont)

Polymeric Material	Explosive	Test Temperature, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Grease Form H	RDX	100	0.13	0.30	0.22	0.00	None	55-M2-43
	Tetryl	100	0.13	0.41	0.33	0.00	None	55-M2-43
	TNT	100	0.13	0.21	0.13	0.00	None	55-M2-43
	Tritonal	100	0.13	0.15	0.10	0.00	None	55-M2-43
Grease No. A-20044	Black powder	100	0.20	0.80	0.80	0.00	None	55-M2-43
	Composition A-3	100	0.20	0.46	0.53	0.00	None	55-M2-43
	Composition B	100	0.20	0.24	0.16	0.00	None	55-M2-43
	Composition C-4	100	0.20	0.23	0.17	0.00	None	55-M2-43
	Pentolite 50/50	100	0.20	1.87	2.15	0.08	Negligible	55-M2-43
	Picratol	100	0.20	0.44	0.36	0.00	None	55-M2-43
	RDX	100	0.20	0.30	0.24	0.00	None	55-M2-43
	Tetryl	100	0.20	0.41	0.38	0.00	None	55-M2-43
	TNT	100	0.20	0.21	0.04	0.00	None	55-M2-43
	Tritonal	100	0.20	0.15	0.07	0.00	None	55-M2-43
Grease No. A-20046	Black powder	100	0.17	0.80	0.83	0.00	None	55-M2-43
	Composition A-3	100	0.17	0.46	0.38	0.00	None	55-M2-43
	Composition B	100	0.17	0.24	0.18	0.00	None	55-M2-43
	Composition C-4	100	0.17	0.23	0.26	0.00	None	55-M2-43
	Pentolite 50/50	100	0.17	1.87	2.00	0.00	None	55-M2-43
	Picratol	100	0.17	0.44	0.36	0.00	None	55-M2-43
	RDX	100	0.17	0.30	0.23	0.00	None	55-M2-43
	Tetryl	100	0.17	0.41	0.49	0.00	None	55-M2-43
	TNT	100	0.17	0.21	0.08	0.00	None	55-M2-43
	Tritonal	100	0.17	0.15	0.06	0.00	None	55-M2-43
Grease No. 372-72-539	Black powder	100	0.11	0.80	0.71	0.00	None	55-M2-43
	Composition A-3	100	0.11	0.46	0.34	0.00	None	55-M2-43
	Composition B	100	0.11	0.24	0.21	0.00	None	55-M2-43

TABLE 58 (Cont)

Polymeric Material	Explosive	Test Temperature, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Grease No. 372-72-539	Composition C-4	100	0.11	0.23	0.38	0.04	Negligible	55-M2-43
	Pentolite 50/50	100	0.11	1.87	2.27	0.29	Negligible	55-M2-43
	Picratol	100	0.11	0.44	0.34	0.00	None	55-M2-43
	RDX	100	0.11	0.30	0.23	0.00	None	55-M2-43
	Tetryl	100	0.11	0.41	0.37	0.00	None	55-M2-43
	TNT	100	0.11	0.21	0.09	0.00	None	55-M2-43
	Tritonal	100	0.11	0.15	0.04	0.00	None	55-M2-43
Grease No. XC-4272	Black powder	100	0.19	0.80	0.64	0.00	None	55-M2-43
	Composition A-3	100	0.19	0.46	0.26	0.00	None	55-M2-43
	Composition B	100	0.19	0.24	0.30	0.00	None	55-M2-43
	Composition C-4	100	0.19	0.23	0.17	0.00	None	55-M2-43
	Pentolite 50/50	100	0.19	1.87	2.13	0.07	Negligible	55-M2-43
	Picratol	100	0.19	0.44	0.51	0.00	None	55-M2-43
	RDX	100	0.19	0.30	0.27	0.00	None	55-M2-43
	Tetryl	100	0.19	0.41	0.25	0.00	None	55-M2-43
	TNT	100	0.19	0.21	0.16	0.00	None	55-M2-43
	Tritonal	100	0.19	0.15	2.25	1.91	Slight	55-M2-43
Grease No. XC-4282	Black powder	100	0.02	0.80	0.70	0.00	None	55-M2-43
	Composition A-3	100	0.02	0.46	0.31	0.00	None	55-M2-43
	Composition B	100	0.02	0.24	0.21	0.00	None	55-M2-43
	Composition C-4	100	0.02	0.23	0.30	0.05	Negligible	55-M2-43
	Pentolite 50/50	100	0.02	1.87	2.49	0.60	Negligible	55-M2-43
	Picratol	100	0.02	0.44	0.35	0.00	None	55-M2-43
	RDX	100	0.02	0.30	0.24	0.00	None	55-M2-43
	Tetryl	100	0.02	0.41	0.33	0.00	None	55-M2-43
	TNT	100	0.02	0.21	0.15	0.00	None	55-M2-43
	Tritonal	100	0.02	0.15	0.21	0.07	Negligible	55-M2-43

TABLE 58 (Cont)

Polymeric Material	Explosive	Test Temperature, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Grease No. XCT-4043	Black powder	100	0.09	0.80	0.55	0.00	None	55-M2-43
	Composition A-3	100	0.09	0.46	0.35	0.00	None	55-M2-43
	Composition B	100	0.09	0.24	0.23	0.00	None	55-M2-43
	Composition C-4	100	0.09	0.23	0.22	0.00	None	55-M2-43
	Pentolite 50/50	100	0.09	1.87	2.11	0.05	Negligible	55-M2-43
	Picratol	100	0.09	0.44	0.61	0.08	Negligible	55-M2-43
	RDX	100	0.09	0.30	0.32	0.00	None	55-M2-43
	Tetryl	100	0.09	0.41	0.55	0.05	Negligible	55-M2-43
	TNT	100	0.09	0.21	0.17	0.00	None	55-M2-43
	Tritonal	100	0.09	0.15	0.17	0.00	None	55-M2-43
Grease No. XC-5012	Black powder	100	0.22	0.80	0.92	0.00	None	55-M2-43
	Composition A-3	100	0.22	0.46	0.38	0.00	None	55-M2-43
	Composition B	100	0.22	0.24	0.04	0.00	None	55-M2-43
	Composition C-4	100	0.22	0.23	0.39	0.00	None	55-M2-43
	Pentolite 50/50	100	0.22	1.87	1.84	0.00	None	55-M2-43
	Picratol	100	0.22	0.44	0.39	0.00	None	55-M2-43
	RDX	100	0.22	0.30	0.24	0.00	None	55-M2-43
	Tetryl	100	0.22	0.41	4.87	4.24	Moderate	55-M2-43
	TNT	100	0.22	0.21	3.44	3.01	Moderate	55-M2-43
	Tritonal	100	0.22	0.15	0.23	0.00	None	55-M2-43
Grease-Electro-Lube Pres-o-valve	Black powder	100	0.16	0.80	0.63	0.00	None	55-M2-43
	Composition A-3	100	0.16	0.46	1.09	0.47	Negligible	55-M2-43
	Composition B	100	0.16	0.24	0.92	0.52	Negligible	55-M2-43
	Composition C-4	100	0.16	0.23	0.32	0.00	None	55-M2-43
	Pentolite 50/50	100	0.16	1.87	2.04	0.01	Negligible	55-M2-43
	Picratol	100	0.16	0.44	0.48	0.00	None	55-M2-43
	RDX	100	0.16	0.30	0.35	0.00	None	55-M2-43

TABLE 58 (Cont)

Polymeric Material	Explosive	Test Temperature, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Grease-Electro-Lube Pres-o-valve	Tetryl	100	0.16	0.41	0.53	0.00	None	55-M2-43
	TNT	100	0.16	0.21	0.17	0.00	None	55-M2-43
	Tritonal	100	0.16	0.15	0.02	0.00	None	55-M2-43
Pan Glaze Stopcock grease	Tetrytol 65/35	100	0.11	2.05	3.57	1.41	Very slight	53-M2-15
	M-1	90	0.19	0.85	0.51	0.00	None	136 522
	M-6	90	0.19	3.18	1.45	0.00	None	136 522

TABLE 59

Appearance of Silicones After Storage

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Pan glaze	Tetrytol 65/35	12	76	Turns light brown	53-M2-15

Section 10

POLYSTYRENES AND COPOLYMERS

Modified polystyrenes and straight polystyrenes have little or no effect on explosives and propellants.

Straight polystyrenes are unaffected by contact with explosives and propellants.

Modified polystyrenes show much greater susceptibility than straight polystyrenes to attack by explosives and propellants that contain nitroglycerine or TNT.

Since butadiene/styrene copolymers are elastomeric materials, they are discussed in the section on Rubbers and Synthetic Rubbers.

TABLE 60

Vacuum Stability Test Results for Polystyrenes

Polymeric Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
C-11 Copolymer	Composition B	100	0.20	0.31	0.26	0.00	None	52-M2-130
	Tetryl	100	0.20	0.36	0.31	0.00	None	52-M2-130
	OIO	90	0.26	0.81	0.81	0.00	None	52-H1-2365
	T-6	90	0.26	4.90	4.55	0.00	None	52-H1-2365
Dylene No. 100	RDX	120	0.17	0.63	0.71	0.00	None	55-M2-50
Hip-185a	OIO	90	0.17	0.76	0.90	0.00	None	52-M2-138
Kralastic 2183-6 Type J	Tetryl	100	0.05	0.46	0.95	0.44	Negligible	53-M2-56
	T-2	90	0.08	6.13	4.32	0.00	None	52-H1-2066
Kralastic BM-2146	Composition B	100	0.26	0.36	0.27	0.00	None	54-M2-5
	T-2	90	0.11	6.13	4.60	0.00	None	52-H1-2066
Lustrex LT-373	Composition B	100	0.17	0.34	1.07	0.56	Negligible	52-M2-128
	JPN	100	0.21	2.36	3.21	0.64	Negligible	53-M2-4
	M-9	90	0.48	12.12	10.62	0.00	None	52-M2-3
	MRP	90	0.21	1.78	2.39	0.40	Negligible	53-M2-4
	T-2	100	0.21	7.22	10.48	3.05	Moderate	53-M2-4
	T-8	100	0.21	2.28	2.90	0.41	Negligible	53-M2-4
	Tetryl	100	0.17	0.42	0.51	0.00	None	52-M2-128
	RDX	100	0.23	0.63	0.47	0.00	None	52-M2-146
	TNT	100	0.23	0.29	0.45	0.00	None	52-M2-146
Lustrex clear	RDX	100	0.11	0.63	0.52	0.00	None	52-M2-146
	TNT	100	0.11	0.29	0.16	0.00	None	52-M2-146

TABLE 60 (Cont)

Polymeric Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Polystyrene (straight)	M-9	90	0.20	10.44	10.26	0.00	None	52-M2-173
	T-6	90	0.14	5.53	5.72	0.05	Negligible	52-M2-102
	MRP	90	0.12	1.71	1.77	0.00	None	134829
Polystyrene (modified) (GR-S) with GR-S rubber	Composition B	100	0.10	0.28	0.24	0.00	None	53-M2-22
	Composition C-4	100	0.10	0.35	0.29	0.00	None	53-M2-22
	Igniter Mix K-29	100	0.24	0.34	0.34	0.00	None	52-M2-143
	Iron oxide/primer comp	100	0.16	0.20	0.21	0.00	None	56-M2-93
	Lead peroxide	100	0.16	0.20	0.31	0.00	None	56-M2-93
	Tetryl	100	0.10	0.39	0.27	0.00	None	53-M2-22
Polystyrene Solution	M-9	90	0.84	10.44	12.12	0.84	Negligible	52-M2-173
Styron No. 666 (Black rod)	JPN	100	0.12	2.36	2.35	0.00	None	53-M2-4
	MRP	100	0.12	1.71	1.77	0.00	None	53-M2-4
	Pyrotech. Comp	100	0.48	0.43	0.52	0.00	None	53-M2-95
	T-2	100	0.12	7.22	7.27	0.00	None	53-M2-4
	T-6	90	0.11	3.98	4.45	0.36	Negligible	54-M2-12
	T-8	100	0.12	2.04	1.93	0.00	None	53-M2-4
Polystyrene (black)	T-6	90	0.15	0.78	4.65	6.00	None	52-M2-109
Styron No. 700	Composition B	100	0.15	0.26	0.25	0.00	None	54-M2-28
	Tetryl	100	0.15	0.21	0.15	0.00	None	54-M2-28
RD-51-24-Bakelite	Black powder	100	0.25	1.02	0.89	0.00	None	52-H1-2066
	T-2	90	0.12	6.13	4.70	0.09	None	52-H1-2066
Cerex-yellow	RDX	100	0.16	0.63	0.55	0.00	None	52-M2-146
	TNT	100	0.16	0.29	0.26	0.00	None	52-M2-146

TABLE 60 (Cont)

Polymeric Material	Explosive	Test Temperature, °C	Polymer Control	Explosive Control	Polymer/Explosive Mixture	Net Increase Due to Polymer	Remarks	Picatinny Report No.
S-50 Polymer	Black powder	100	0.29	0.43	0.58	0.00	None	53-M2-5
Styrene/Isobutylene	JPN	100	0.32	2.36	2.36	0.00	None	53-M2-4
	M-7	90	0.20	1.90	1.81	0.00	None	53-M2-5
	MRP	100	0.32	1.71	2.10	0.07	Negligible	53-M2-4
with aluminum	Pyrotech. Comp FF101L	100	0.37	0.39	0.51	0.00	None	52-M2-155
	RDX	100	0.37	0.39	0.55	0.00	None	53-M2-89
with aluminum	SW-11452-25	100	0.26	0.13	0.23	0.00	None	52-M2-155
	T-2	90	0.32	7.22	6.53	0.00	None	53-M2-4
	T-6	90	0.39	2.50	2.66	0.00	None	52-M2-4
	T-8	90	0.32	2.04	1.96	0.00	None	53-M2-4
	Tetryl	100	0.37	0.28	0.54	0.00	None	53-M2-89
S-60 Polymer	T-2	90	0.20	6.47	5.86	0.00	None	51-8-6
	Type O-Propellant	90	0.20	2.04	1.91	0.00	None	51-8-6
Plastic Cement VPX-27	Composition B	100	1.08	0.28	0.92	0.00	None	56-H1-1635
	Tetryl	100	1.08	0.29	1.22	0.00	None	56-H1-1635
Plexene M	JPN	90	0.33	2.36	2.51	0.00	None	53-M2-4
	MRP	90	0.33	1.71	1.88	0.00	None	53-M2-4
	T-2	90	0.33	7.22	6.94	0.00	None	53-M2-4
	T-8	90	0.33	2.04	2.12	0.00	None	53-M2-4

TABLE 61

Percent Change in Weight of Polystyrene After Storage

Polymeric Material	Explosive	Storage, weeks,	Temperature, °C	Change in Weight of Control, %	Change in Weight of Contact, %	Picatinny Report No.
C-11 Copolymer	Composition B	8	76	+0.56	+82.2	52-M2-130
	Tetryl	8	76	+0.56	+ 0.52	52-M2-130
Hip 185a	OIO	8	50	+0.12	+ 0.95	52-M2-138
Kralastic 2183-6	Tetryl	10	76	+0.31	+ 1.57	52-M2-56
Kralastic 2146-1	Composition B	18	76	−0.26	+27.3	54-M2-5
Lustrex-LT-373	Composition B	8	76	+0.37	+ 4.82	52-M2-128
	JPN	25	50	+0.19	+ 0.49	53-M2-4
	M-9	8	50	−0.11	− 0.07	52-M2-3
	MRP	25	50	+0.19	+ 0.45	53-M2-4
	T-2	25	50	+0.19	+ 1.10	53-M2-4
	T-8	25	50	+0.19	+ 0.68	53-M2-4
	Tetryl	8	76	+0.37	+ 0.07	52-M2-128
Polystyrene (straight)	M-9	8	50	−0.01	− 0.27	52-M2-173
Polystyrene Modified GR-S	Composition B	8	76	−0.05	+ 0.51	53-M2-22
	Composition C-4	8	76	−0.05	+45.2	53-M2-22
	Igniter Mix K-29	9	50	−0.02	− 0.05	52-M2-143
	Tetryl	8	76	−0.05	0.00	53-M2-22
Styron No. 666 (Black rod)	JPN	24	50	0.00	0.00	53-M2-4
	MRP	24	50	0.00	0.00	53-M2-4
	Pyrotech. Comp	8	76	+0.03	0.00	53-M2-95
	T-2	24	50	0.00	+ 0.61	53-M2-4
	T-8	24	50	0.00	+ 0.16	53-M2-4

TABLE 61 (Cont)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Change in Weight of Control, %	Change in Weight of Contact, %	Picatinny Report No.
S-50 Polymer Styrene/Isobutylene	JPN	21	50	−0.03	+ 0.62	53-M2-4
	MRF	19	50	−0.03	+ 0.66	53-M2-4
	T-2	19	50	−0.03	+ 0.95	53-M2-4
	T-8	19	50	−0.03	+ 1.16	53-M2-4
S-60 Polymer	T-2	15	50	+0.20	+21.90	51-S-6
	Type O- Propellant	15	50	+0.20	+ 9.30	51-S-6

TABLE 62

Effect of Storage on Appearance of Polystyrenes

Polymeric Material	Explosive and Propellant	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Lustrex LT-373	JPN	25	50	More resistant to impact	53-M2-4
	MRP	25	50	No effect	53-M2-4
	T-2	25	50	No effect	53-M2-4
	T-8	25	50	More resistant to impact	53-M2-4
Lustrex LT (Red)	RDX	8	76	No effect	52-M2-146
	TNT	8	76	Darkened	
Lustrex - Clear	RDX	8	76	No effect	52-M2-146
	TNT	8	76	No effect	52-M2-146
Polystyrene (straight)	M-9	8	50	No effect	52-M2-173
Styron No. 666	JPN	26	50	No effect	53-M2-4
	MRP	26	50	No effect	53-M2-4
	T-2	26	50	Severely crazed	53-M2-4
	T-8	26	50	Slight crazing	53-M2-4
Cerex-yellow	RDX	8	76	No effect	52-M2-146
	TNT	8	76	No effect	52-M2-146
S-50 Polymer Styrene/Isobutylene	Black powder	8	76	Explosive adhered	53-M2-5
	JPN	21	50	Surface tacky	53-M2-4
	M-7	8	50	No effect	53-M2-5
	Pyrotech. Comp FF101L	7	71	Increases adhesion	52-M2-155
	SW-11452-25	7	71	No effect	52-M2-155
	T-6	10	50	Moderately softened	52-M2-4
S-60 Polymer	T-2	15	50	Yellowed, softened, and pitted	51-8-6
	Type O-Propellant	15	50	Softened and pitted	51-8-6

TABLE 63

100°C Heat Test Results for Polystyrene

Material and Weight in Grams	Explosive and Weight in Grams	Loss In Weight, 1st 48 Hrs. Gm	Loss In Weight, 1st 48 Hrs. %	Loss In Weight, 2nd 48 Hrs. Gm	Loss In Weight, 2nd 48 Hrs. %	Explosion in 100 Hrs.	Picatinny Report No.
S-50 Polymer Styrene/Isobutylene	Lead Azide						
0.6	0.6	0.0247	2.06	0.0008	0.07	None	53-M2-89
0.6	—	0.0302	5.03	0.0003	0.05	None	53-M2-89
—	0.6	0.0043	0.72	0.00	0.00	None	53-M2-89
	M-20						
0.6	0.6	0.0129	1.07	0.0003	0.03	None	53-M2-89
0.6	—	0.0302	5.03	0.0003	0.05	None	53-M2-89
—	0.6	0.0019	0.32	0.0004	0.06	None	53-M2-89
	Primer Mix-NOL-130						
0.6	0.6	0.0268	2.23	0.0022	0.18	None	53-M2-89
0.6	—	0.0302	5.03	0.0002	0.05	None	53-M2-89
—	0.6	0.0083	1.38	0.0015	0.25	None	53-M2-89
	Primer Mix 100						
0.6	0.6	0.0172	1.43	0.0002	0.02	None	53-M2-89
0.6	—	0.0302	5.03	0.0003	0.05	None	53-M2-89
—	0.6	0.0006	0.10	0.0003	0.00	None	53-M2-89
	Squib Mix-M1A1						
0.6	0.6	0.0108	0.90	0.0000	0.00	None	53-M2-89
0.6	—	0.0101	1.68	0.0000	0.00	None	53-M2-89
—	0.6	0.0017	0.28	0.0000	0.00	None	53-M2-89

Section 11

SYNTHETIC RUBBERS AND RUBBER DERIVATIVES

Most of these materials, also known as unsaturated elastomers, soften and swell when in contact with nitroglycerine-containing propellants. The softening and swelling are more severe when the propellants contain a high proportion of nitroglycerine or plasticizers. Silicone rubbers appear to be the least affected by such propellants.

When in contact with TNT, most elastomers become brittle and stiff. It appears that there is less tendency to become brittle as the unsaturation decreases.

Butadiene/Acrylonitrile

Copolymers of butadiene/acrylonitrile (Nitrile rubber, GR-A, Buna N) usually contain from 15% to 55% acrylonitrile by weight. They possess high resistance to the swelling action of oils and greases. They have excellent resistance to degradation from heat, aging, and sunlight.

Contact with butadiene/acrylonitrile rubbers imparts slight reactivity to tetryl, Composition B, and RDX. Generally, explosives in contact with this type of polymer do not exhibit excessive reactivity.

Butadiene/acrylonitrile polymers readily absorb nitroglycerine from propellants. The absorption appears to be related to the nitroglycerine content of the propellant.

Butadiene/Styrene

The most common of all the butadiene/styrene (GR-S) copolymers is the 75/25% by weight butadiene/styrene.

Butadiene/styrene polymers have no adverse effect upon the reactivity of explosives or propellants. They soften and swell when in contact with propellants containing nitroglycerine and become brittle in the presence of explosives containing TNT.

Butyl Rubber

Butyl rubbers are copolymers of isobutylene made vulcanizable by the addition of a small amount of a diolefin. Commercial butyl rubbers are usually

copolymers of isobutylene with isoprene. The limited unsaturation of butyl rubber offers fewer sites for crosslinking than are available in natural rubber and in some of the other elastomers. This low unsaturation leads to outstanding chemical inertness and a high degree of impermeability to gases. Explosives and propellants do not significantly affect butyl elastomers, and butyl rubbers are not adversely affected by explosives and propellants.

Neoprene (2-Chloro-1, 3-Butadiene)

Explosives show little or no reactivity when placed in contact with neoprene, but JPN and MRP propellants show some activity in the presence of neoprene.

Polysulfide Rubber

Polysulfide rubbers or compositions containing a high percentage of polysulfide polymers should not be used in contact with PETN, Pentolite, tetryl, or Composition B. The propellants tested showed little or no reactivity in the presence of polysulfides.

Polysulfide rubbers absorb some nitroglycerine from double- and triple-base propellants.

Silicone Rubbers

The outstanding characteristics of silicone rubbers are stability at elevated temperatures; flexibility at low temperatures; and resistance to ozone, water, oil, and chemicals.

The silicone rubbers are unaffected by the presence of explosives and propellants, and propellants and explosives are not activated by them. These results are probably due to their saturated nature.

TABLE 64

Effects of Storage on Appearance of Rubber and Rubber Derivatives

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Armstrong N-111	Black powder	8	76	Turns brown and loses some adhesion	53-M2-26
	Composition B	8	76	Browns, loses flexibility and adhesion	53-M3-26
	M-1	8	50	Slightly browns	53-M2-26
	M-2	8	50	No change	52-M2-84
	Tetryl	8	76	Turns brown	53-M2-26
Armstrong N-171 Buna N base (synthetic rubber)	Black powder	8	76	No change	53-M2-26
	Composition B	8	76	Loses flexibility	53-M2-26
	M-1	8	50	No change	53-M2-26
	Tetryl	8	76	Loses some adhesion	53-M2-26
	T-19	15	50	Softens and loses adhesion	55-M2-4
	SW-11452-25	7	71	Becomes flexible and tough	52-M2-155
Bondmaster M-373	Black powder	24	76	No change	56-M2-80
Briggs No. 107 Butadiene Acrylonitrile	M-1	48	76	Complete deterioration	57-TM2-33
	M-9	48	76	Deteriorates	57-TM2-33
	M-10	48	76	Deteriorates	57-TM2-33
Buna-N-o-rings Butadiene/ Acrylonitrile	T-16	28	50	Swells	56-M2-41

TABLE 64 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Dex-o-Tex					
Neoprene Conductive	Lead azide	1	76	No change	56-M2-1
	M-2	1	50	No change	56-M2-1
	M-9	1	50	No change	56-M2-1
	M-15	1	50	Becomes tacky	56-M2-1
Dex-o-Tex	M-17	1	50	Explosive adheres	57-M2-1
	RDX	1	76	No change	57-M2-1
	TNT	1	71	TNT adheres	57-M2-1
Dioxime No. 1 Butyl rubber	Composition B	9	76	Slight increase—elasticity, warped	52-M2-85
	Tetryl	9	76	Slight increase in elasticity	52-M2-85
Dioxime No. 2	Composition B	9	76	No change	52-M2-85
	Tetryl	9	76	No change	52-M2-85
E.C. No. 711 (3M)	Composition B	13	76	Darkens, loses some adhesion	55-M2-19
	Tetryl	13	76	Becomes brittle and darkens	55-M2-19
	TNT	13	76	Loses some adhesion	
E. C. No. 770 (3M)	Black powder	32	76	No change	137253
	T2	32	50	Softens, loses adhesion	137253

TABLE 64 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
E.C. No. 776 (3M)	PBX	28	76	No change	56-M2-29
	PETN	28	76	No change	56-M2-29
	Tetryl	28	76	No change	56-M2-29
E.C. No. 826 (3M)	Black powder	24	76	No change	56-M2-80
E.C. No. 833 (3M)	PBX	52	76	Slight loss of adhesion	56-M2-29
	PETN	52	76	Loses elasticity, surface hardness	56-M2-29
	Tetryl	52	76	Loses elasticity, surface Hardens	56-M2-29
E.C. No. 847 (3M)	PBX	52	76	No change	56-M2-29
	PETN	52	76	Becomes brittle	56-M2-29
	Tetryl	52	76	Becomes brittle	56-M2-29
E.C. No. 1113 Oil resistant elastomer	Composition B	4	76	Softened, loses adhesion	53-M2-96
Dampcoat Enamel	Amatol 60/40	4	76	Turns brown	51-8-1
	TNT	4	76	Loses some adhesion, browns	
GR-I (butyl)	JPN	28	50	Deteriorates	53-M2-4
	MRP	28	50	Softens	53-M2-4
	T-2	28	50	Softens	53-M2-4
	T-5	28	50	Softens	53-M2-4

TABLE 64 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
GR-M	JPN	28	50	No report	53-M2-4
(Neoprene)	MRP	28	50	Becomes flexible and softens	53-M2-4
	T-2	28	50	Becomes flexible and softens	53-M2-4
	T-8	28	50	Becomes flexible and softens	53-M2-4
GR-S	JPN	28	50	Deteriorates	53-M2-4
(Butadiene/Styrene)	MRP	28	50	Softens a little	53-M2-4
	T-2	28	50	Softens a little	53-M2-4
	T-8	28	50	Slight softening	53-M2-4
Monocork No. 100	JPN	28	50	Softens	53-M2-4
Synthetic rubber	MRP	28	50	Becomes tacky	53-M2-4
	T-2	28	50	Softens	53-M2-4
	T-8	28	50	Softens and becomes tacky	53-M2-4
Monocork No. 500	JPN	28	50	Loses some flexibility	53-M2-4
Neoprene base	MRP	28	50	Loses some flexibility	53-M2-4
	T-2	28	50	Loses some flexibility	53-M2-4
	T-8	28	50	Loses some flexibility	53-M2-4
Plastiktrim	OGK	10	50	Softens and becomes tacky	52-M2-43
(Reclaimed rubber)	T-2	10	50	Softens and becomes tacky	52-M2-43
	T-6	10	50	Softens and becomes tacky	52-M2-43
	T-8	10	50	Softens and becomes tacky	52-M2-43
	T-9	10	50	Softens	52-M2-43

TABLE 64 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Pliobond No. 30 Butadiene/Acrylonitrile	Incendiary Cmpd K29	32	76	Blisters a little	56-M2-20
	Incendiary Cmpd Mix-IM-68	24	76	Turns darker	56-M2-20
	Incendiary Cmpd Mix-IM-136	32	76	Becomes tough, loses adhesion, dries out	56-M2-20
	Incendiary Cmpd Mix-IM-142	32	76	Dries out, poor adhesion	56-M2-20
	MOX-24	32	76	Turns black	56-M2-20
	RDX	32	76	Becomes rubbery and tough, no adhesion	56-M2-20
	Tetryl	32	76	Turns black and becomes brittle	56-M2-20
	Tracer Cmpd R-45	32	76	Dries out, poor adhesion	56-M2-20
	Pyrotech. SW11452-25	7	71	No change	52-M2-155
SFR 172-2	M-1	48	76	No change	57-TM2-33
	M-9	48	76	Swells, becomes tacky and soft	57-TM2-33
	M-17	48	76	Swells, M-17 adheres	57-TM2-33
SFR-172-3	M-1	48	76	Becomes tacky and swells	57-TM2-33
	M-9	48	76	Becomes tacky and swells	57-TM2-33
	M-17	48	76	Deteriorates	57-TM2-33

TABLE 64 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Scotchweld No. 585 uncured	M-1	24	76	Becomes brittle	56-M2-38
Sulfur No. 1 Butyl rubber	Composition B	9	76	No change	52-M2-85
	Tetryl	9	76	No change	52-M2-85
Sulfur No. 2 Butyl rubber	Composition B	9	76	No change	52-M2-85
	Tetryl	9	76	No change	52-M2-85
Presstite No. 106 Polysulfide rubber	M-2	8	50	No change	52-M2-84
	M-7	8	50	Fades a little	52-M2-171
	M-9	8	50	No change	52-M2-173
Pro Seal EP-601	Composition B	40	71	Loses elasticity, surface roughens	56-M2-30
Thiokol L-P2	Composition A-3	12	76	No change	55-M2-57
	M-1	12	76	No change	55-M2-57
	M-8	12	50	Becomes brittle	55-M2-57
	M-9	12	50	Becomes brittle	55-M2-57
Thiokol 1605AH	JPN	26	50	No change	53-M2-4
	MRP	26	50	No change	53-M2-4
	T-2	26	50	No change	53-M2-4
	T-8	26	50	No change	53-M2-4

TABLE 64 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Thiokol 1620AH	JPN	26	50	No change	53-M2-4
	MRP	26	50	No change	53-M2-4
	T-2	26	50	No change	53-M2-4
	T-8	26	50	No change	53-M2-4
Thiokol 3000FA	JPN	26	50	No change	53-M2-4
	MRP	26	50	Becomes more flexible	53-M2-4
	T-2	26	50	Becomes more flexible	53-M2-4
	T-8	26	50	Becomes more flexible	53-M2-4
Thiokol 3000 PR-I	JPN	26	50	Deteriorates	53-M2-4
	MRP	26	50	Softens	53-M2-4
	T-2	26	50	Softens	53-M2-4
	T-8	26	50	Softens	53-M2-4
Thiokol 3000ST	JPN	26	50	Softens	53-M2-4
	MRP	26	50	Softens	53-M2-4
	T-2	26	50	Softens	53-M2-4
	T-8	26	50	Deteriorates	53-M2-4
Thiokol 3600 ST	JPN	26	50	Becomes tacky	53-M2-4
	MRP	26	50	Softens	53-M2-4
	T-2	26	50	Softens	53-M2-4
	T-8	26	50	Softens	53-M2-4

TABLE 64 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Polymer	Picatinny Report No.
Silastic No. 150 Silicone rubber	JPN	26	50	No change	53-M2-4
	MRP	26	50	No change	53-M2-4
	T-2	26	50	Slightly yellows	53-M2-4
	T-8	26	50	No change	53-M2-4
Silastic No. 80-24-480 Silicone rubber	M-1	48	76	Becomes spotted, M1 adheres	57-TM2-33
	M-9	48	76	Swells slightly	57-TM2-33
	M-17	48	76	Yellows—some M-17 adheres	57-TM2-33

TABLE 65

100°C Heat Test Results for Rubbers

Material and Weight in gms	Explosive and Weight in gms	Loss in Weight: 1st 48 Hours gms	1st 48 Hours %	2nd 48 Hours gms	2nd 48 Hours %	Explosion in 100 Hrs	Picatinny Report No.
Armstrong J-1140D	Dynamite						
0.6	0.6	0.0487	4.05	0.0216	1.80	None	52-M2-110
0.6	—	0.0175	2.85	0.0007	0.11		
—	0.6	0.0404	6.73	0.0226	3.76		
Dex-o-Tex	Lead Azide						
0.6	0.6	0.0026	0.21	0.0030	0.25	None	57-M2-1
0.6	—	0.0007	0.11	0.0008	0.13		
—	0.6	0.0018	0.30	0.0026	0.43		
E.C. No. 373	Lead Azide						
0.6	0.6	0.0100	0.83	0.0003	0.03	None	53-H1-1347
0.6	—	0.004[illegible]	0.75	0.0005	0.08		
—	0.6	0.0055	0.91	0.0005	0.08		
E. C. No. 801	Composition A-3						
0.6	0.6	0.0235	1.95	0.0025	0.21	None	53-M2-76
0.6	—	0.0243	4.05	0.0019	0.31		
—	0.6	0.0000	0.00	0.0000	0.00		
	Cyclotol 75/25						
0.6	0.6	0.0305	2.54	0.0026	0.21	None	53-M2-76
0.6	—	0.0243	4.05	0.0019	0.31		
—	0.6	0.0007	0.11	0.0000	0.00		

TABLE 65 (Continued)

Material and Weight in gms	Explosive and Weight in gms	Loss in Weight 1st 48 Hours gms	Loss in Weight 1st 48 Hours %	Loss in Weight 2nd 48 Hours gms	Loss in Weight 2nd 48 Hours %	Explosion in 100 Hrs	Picatinny Report No:
E.C. No. 801	RDX-Hystine						
0.6	0.6	0.0287	2.39	0.0025	0.21	None	53-M2-76
0.6	—	0.0243	4.05	0.0019	0.31		
—	0.6	0.0001	0.02	0.0000	0.00		
E.C. No. 847	Composition A-3						
0.6	0.6	0.2189	0.18	0.0000	0.00	None	53-M2-76
0.6	—	0.2076	0.35	0.0000	0.00		
—	0.6	0.0000	0.00	0.0000	0.00		
	Cyclotol 75/25						
0.6	0.6	0.2132	0.17	0.0000	0.00	None	53-M2-76
0.6	—	0.2076	0.35	0.0000	0.00		
—	0.6	0.0007	0.11	0.0000	0.00		
	RDX-Hystine						
0.6	0.6	0.0317	2.64	0.0054	0.45	None	53-M2-76
0.6	—	0.2076	0.35	0.0000	0.00	None	
—	0.6	0.0001	0.01	0.0000	0.00	None	

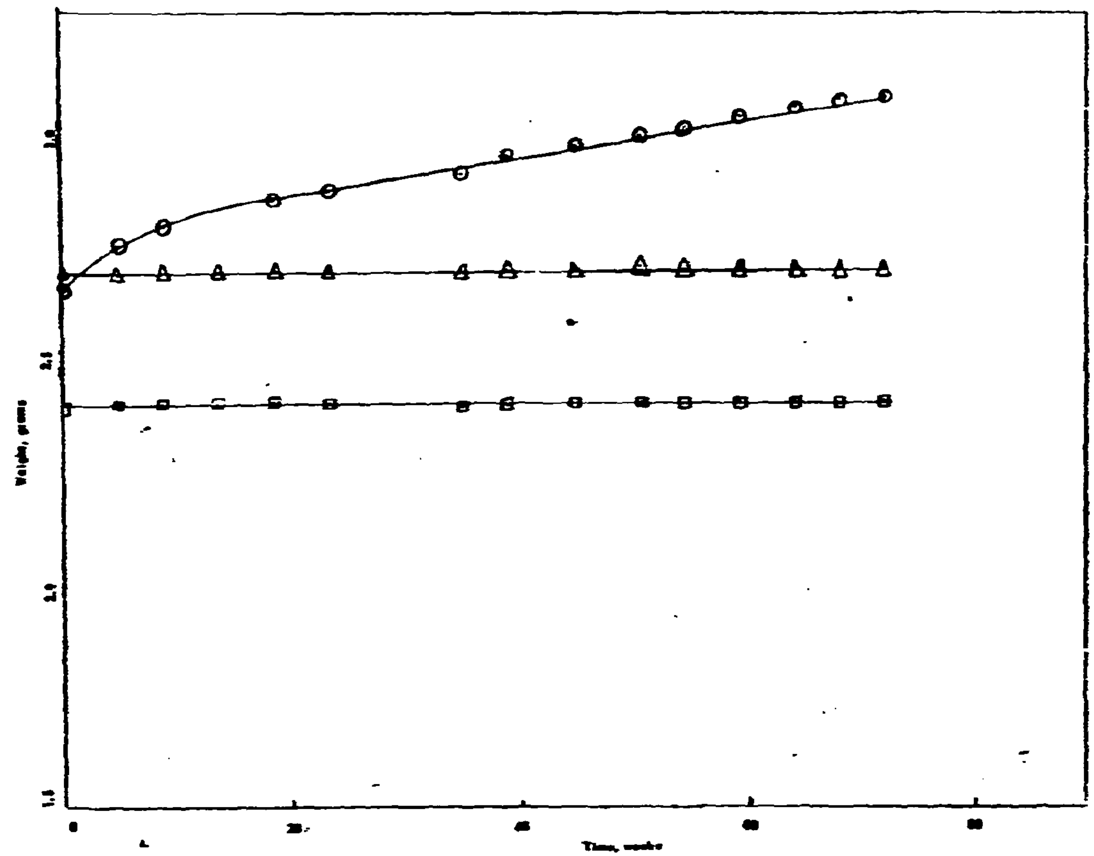

Fig 29 Weight Change of XP-76 in Grams after Storage

- ☐ Room Temperature Control
- ◯ In M7 Propellant at 50°C
- △ 50°C (122°F) Control

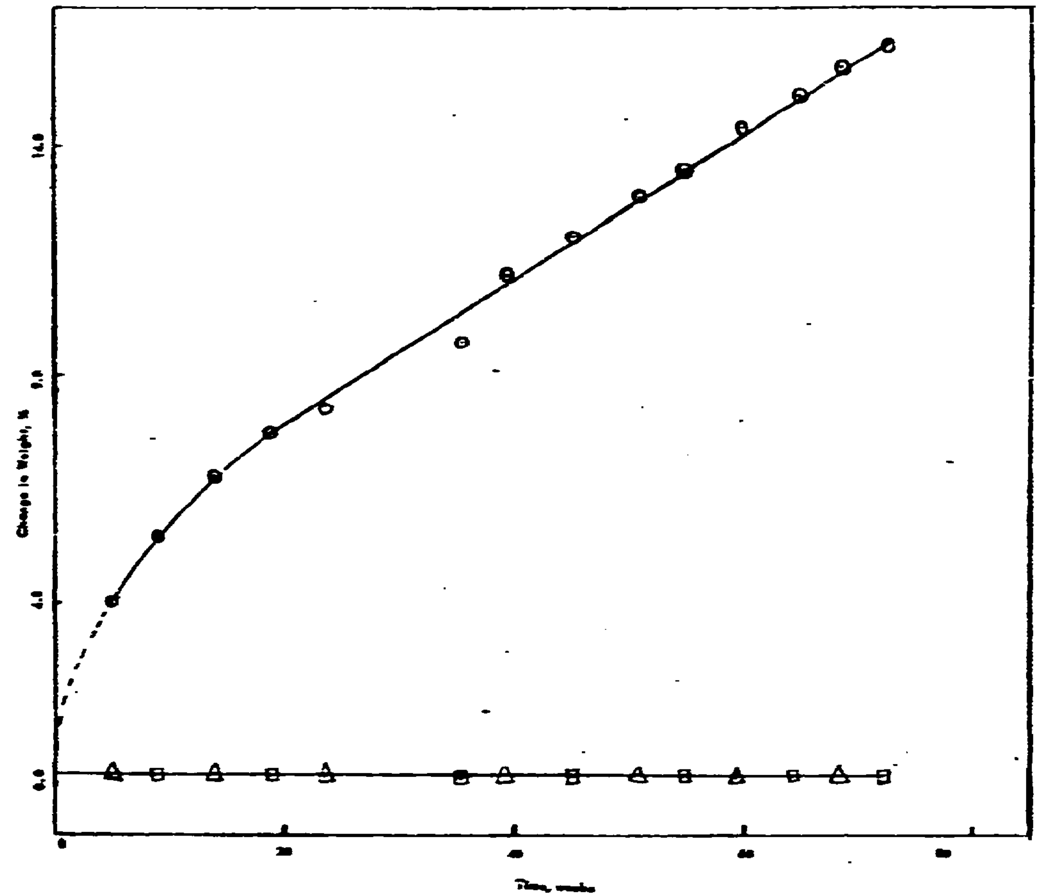

Fig 30 Percent Change in Weight of XP-76 after Storage

□ Room Temperature Control
○ 50°C (122°F) Control
△ In M7 Propellant at 50°C

TABLE 66

Vacuum Stability of Explosives Stored Alone
(ml. gas evolved)

	Initial	6 Mo Storage	12 Mo Storage	18 Mo Storage	24 Mo Storage
Amatol 60/40	1.42	0.89	0.46	0.30	–
Black pwd A-5	0.35	0.41	1.09	11 +	11+
Cyclonite	0.35	0.23	0.18	0.16	0.21
Double base propellant	11.68	12.22	10.32	10.18	9.84
Ednatol 55/45	0.84	0.66	0.78	0.72	1.08
Explosive D	0.33	0.14	0.26	0.26	0.26
Haleite	0.65	0.30	0.50	0.38	0.63
PEP-3	0.23	–	0.48	0.69	1.21
PETN	0.52	0.42	0.38	0.32	0.40
Pentolite 50/50	1.84	2.65	2.48	2.05	1.92
Picratol 52/48	0.46	0.26	0.27	0.17	0.18
RDX-Comp. A-3	0.60	0.11	0.23	0.15	0.19
RDX-Comp B	0.53	0.12	0.09	0.10	0.11
RDX-Comp. C-3	0.99	1.62	1.45	1.46	1.34
Single base propellant	0.17	0.13	0.17	0.14	0.30
T-9 (CP-492)	0.19	2.19	2.59	1.60	3.09
TNT	0.18	0.04	0.03	0.08	0.04
Tetryl	0.35	0.11	0.15	0.37	0.23
Tetrytol 75/25	4.77	3.29	3.60	3.28	3.63
Torpex	0.22	0.04	0.08	0.13	0.13
Tritonal 75/25	0.12	0.09	0.11	0.09	0.10

TABLE 67

Stability of Rubbers Stored Alone

	Room Temperature		50°C		76°C	
Material	Shore Hardness	Condition	Shore Hardness	Condition	Shore Hardness	Condition
VS2-111-1 Hycar OR-25	28D	Flexible	33D	Flexible	40D	Flexible
VS2-111-2 GR-M-10	28D	Flexible	33D	Flexible	35D	Flexible
VS2-116-1 GR-S	25D	Flexible	33D	Flexible	40D	Flexible
VS2-116-2 Natural	40D	Flexible	65D	Extremely Brittle	85D	Rigid
VS2-117-1 Natural	52D		58D	Extremely Brittle	80D	Rigid
VS2-117-2 Hycar OR-15	42D	Flexible	52D	Flexible	70D	Semi Stiff
VS2-118-1 Neoprene (FR)	28D	Flexible	32D	Flexible	70D	Rigid
VS2-118-2 Thiokol (ST)	$50A_1$	Flexible	$75A_1$	Slightly Stiff	$21A_1$	Gummy Deteriorated
VS2-119-1 Butyl (GR-I)	65D	Flexible	65D	Flexible	$65A_1$	Flexible

TABLE 63

Effect of Rubber Composition XP-54 (VS2-116-1) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.19	1.42	2.85	1.24	0.50	0.48	0.45	—
Black powder A-5	0.19	0.35	0.44	0.00	0.43	0.78	1.64	2.22
Cyclonite	0.19	0.35	0.50	0.00	0.17	0.21	0.13	0.26
Double base propellant	0.40	11.68	9.88	0.00	10.92	11.20	9.96	9.58
Ednatol 55/45	0.19	0.84	2.67	1.64	0.88	0.96	0.67	0.95
Explosive D	0.19	0.33	0.22	0.00	0.13	0.27	0.30	0.24
Haleite	0.19	0.65	0.89	0.05	0.28	0.42	0.30	0.49
PEP-3	0.19	0.23	0.53	0.11	—	1.57	1.36	2.52
PETN	0.54	0.52	0.88	0.00	0.28	0.28	0.30	0.50
Pentolite 50/50	0.19	1.84	1.88	0.00	8.37	3.37	4.36	2.95
Picratol 52-48	0.19	0.46	0.31	0.00	0.28	0.15	0.23	0.26
RDX-Comp. A-3	0.19	0.60	0.40	0.00	0.09	0.16	0.13	0.18
RDX-Comp B	0.19	0.53	0.43	0.00	0.15	0.12	—	0.16
RDX-Comp C-3	0.19	0.99	1.71	0.53	0.47	0.54	0.59	0.55
Single base propellant	0.16	0.17	0.24	0.00	0.12	0.13	0.26	0.23
T-9 (CP-492)	0.19	0.19	0.21	0.00	1.86	1.88	1.46	2.20
TNT	0.19	0.18	0.37	0.00	0.03	0.02	0.05	0.03
Tetryl	0.19	0.35	1.04	0.50	0.17	0.16	0.33	0.16
Tetrytol 75/25	0.19	4.77	5.61	0.65	5.53	5.65	7.52	9.77
Torpex	0.19	0.22	0.34	0.00	0.09	0.09	0.15	0.18
Tritonal 75/25	0.19	0.12	0.19	0.00	0.11	0.03	0.00	0.12

Composition of XP-54

GR-S	100.0	Captax	0.75
Steari	1.0	Dibutyl P	12.0
ZnO	5.0	Thermax	30.0
Sulfur	2.0	Micronex W-6	30.0
Altax	0.75		

Cured at 162°C for 15 min.

TABLE 69

Effect of Rubber Composition XP-55 (VS2-116-2) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.30	1.42	3.12	1.40	0.75	0.93	0.83	0.99
Black powder A-5	0.30	0.35	0.60	0.00	0.46	1.04	5.62	8.93
Cyclonite	0.30	0.35	0.70	0.05	0.17	0.26	0.21	0.21
Double base propellant	0.42	11.68	14.04	1.94	14.74	14.84	15.84	16.00
Ednatol 55/45	0.30	0.84	2.34	1.20	1.09	1.12	0.84	1.13
Explosive D	0.30	0.33	0.37	0.00	0.17	0.31	0.32	0.26
Haleite	0.30	0.65	1.28	0.33	0.29	0.45	0.35	0.52
PEP-3	0.30	0.23	0.96	0.43	—	0.43	0.37	0.62
PETN	0.68	0.52	0.94	0.00	3.28	0.36	0.44	0.44
Pentolite 50/50	0.30	1.84	2.19	0.05	3.05	3.38	2.77	2.88
Picratol 52-48	0.30	0.46	0.56	0.00	0.27	0.20	0.18	0.37
RDX-Comp. A-3	0.30	0.60	0.58	0.00	0.11	0.15	0.16	0.25
RDX-Comp. B	0.30	0.53	0.63	0.00	0.15	0.16	0.09	0.22
RDX-Comp. C-3	0.30	0.99	2.03	0.74	0.66	0.50	0.56	0.50
Single base propellant	0.20	0.17	0.30	0.00	0.08	0.20	0.26	0.27
T-9 (CP-492)	0.30	0.19	0.26	0.00	2.20	2.52	1.80	2.35
TNT	0.30	0.18	0.51	0.03	0.04	0.02	0.08	0.02
Tetryl	0.30	0.35	1.29	0.64	0.13	0.19	0.26	0.27
Tetrytol 75/25	0.30	4.77	5.32	0.25	6.21	5.88	8.00	9.58
Torpex	0.30	0.22	0.59	0.07	0.08	0.08	0.17	0.19
Tritonal 75/25	0.30	0.12	0.41	0.00	0.09	0.15	0.05	0.15

Composition XP-55

Smoked sheet natural	100.0
Stearic acid	1.0
Neozone A	1.5
Sulfur	3.0
Thionex	0.3
Thiuram M	0.7
ZnO	5.0
Micronex W-6	60.0

Cured at 162°C for 10 minutes

TABLE 70

Effect of Rubber Composition XP-56 (VS2-117-1) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 5 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.27	1.42	3.41	1.72	0.84	0.76	0.65	0.68
Black powder A-5	0.27	0.35	0.36	0.00	0.49	1.00	4.72	6.00
Cyclonite	0.27	0.35	0.57	0.00	0.15	0.21	0.18	0.28
Double base propellant	0.28	11.68	11.94	0.00	15.06	16.48	16.04	17.12
Ednatol 55/45	0.27	9.84	1.33	0.22	1.92	1.90	1.70	2.30
Explosive D	0.27	0.33	0.07	0.00	0.12	0.30	0.28	0.24
Haleite	0.27	0.65	0.62	0.00	0.28	0.50	0.33	0.54
PEP-3	0.27	0.23	0.63	0.13	—	0.85	1.22	1.39
PETN	0.70	0.52	0.90	0.00	0.60	0.46	0.34	0.32
Pentolite 50/50	0.27	1.84	1.57	0.00	3.83	3.15	2.87	2.47
Picratol 52/48	0.27	0.46	0.63	0.00	0.30	0.30	0.23	0.29
RDX-Comp A-3	0.27	0.60	0.40	0.00	0.14	0.27	0.14	0.14
RDX-Comp B	0.27	0.53	0.59	0.00	0.19	0.15	—	0.26
RDX-Comp C-3	0.27	0.99	1.91	0.65	1.04	0.83	0.71	0.60
Single base propellant	0.16	0.17	0.20	0.00	0.09	0.16	0.26	0.27
T-9 (CP-492)	0.27	0.19	0.20	0.00	1.75	1.98	1.69	2.25
TNT	0.27	0.18	0.33	0.00	0.06	0.04	0.04	0.06
Tetryl	0.27	0.35	0.70	0.08	0.19	0.19	0.24	0.23
Tetrytol 75/25	0.27	4.77	6.03	0.99	8.62	8.06	8.37	9.50
Torpex	0.27	0.22	0.54	0.05	0.11	0.14	0.21	0.15
Tritonal 75/25	0.27	0.12	0.29	0.00	0.05	0.07	0.06	0.13

Composition of XP-56

Smoked sheet (natural)	100.0	ZnO	5.0
Stearic acid	1.0	Whiting	60.0
Neozone A	1.5	Buna clay	25.0
Selfur	2.5	Silene EF	60.0
Altax	0.75	Pine tar	5.0
Captax	0.75	Dispersing oil	5.0

Cured at 170°C for 10 minutes

TABLE 71

Effect of Rubber Composition XP-62 (VS2-111-1) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amarol 60/40	0.17	1.42	3.24	1.65	0.46	0.48	0.35	0.83
Black powder A-5	0.17	0.35	0.35	0.00	0.42	0.67	1.09	1.85
Cyclonite	0.17	0.35	0.33	0.00	0.17	0.19	0.21	0.24
Double base propellant	0.32	11.68	10.04	0.00	13.48	11.38	12.12	12.96
Ednarol 55/45	0.17	0.84	4.37	3.33	1.20	0.85	0.79	1.35
Explosive D	0.17	0.33	0.26	0.00	0.14	0.26	0.21	0.22
Haleite	0.17	0.65	0.97	0.15	0.31	0.46	0.31	0.46
PEP-3	0.17	0.23	0.45	0.05	—	0.52	0.76	1.09
PETN	0.34	0.52	0.92	0.06	0.32	0.52	0.40	0.40
Pentolite 50/50	0.17	1.84	1.81	0.00	3.30	2.69	2.66	2.23
Picratol 52/48	0.17	0.46	0.40	0.00	0.30	0.26	0.15	0.20
RDX-Comp A-3	0.17	0.60	0.48	0.00	0.12	0.16	0.14	0.20
RDX-Comp B	0.17	0.53	0.52	0.00	0.14	0.14	0.12	0.12
RDX-Comp C-3	0.17	0.99	1.68	0.52	0.62	0.69	0.50	0.58
Single base propellant	0.13	0.17	0.22	0.00	0.10	0.11	0.12	0.28
T-9 (CP-492)	0.17	0.19	0.17	0.00	1.64	1.76	1.36	1.77
TNT	0.17	0.18	0.44	0.09	0.08	0.03	0.03	0.14
Tetryl	0.17	0.35	1.65	1.13	0.14	0.13	0.24	0.25
Tetrytol 75/25	0.17	4.77	9.56	4.62	7.86	8.56	8.05	9.23
Torpex	0.17	0.22	0.51	0.12	0.11	0.13	0.12	0.21
Tritonal 75/25	0.17	0.12	0.39	0.10	0.09	0.08	0.07	0.18

Composition of XP-62

Hycar OR-25	100.0
ZnO	5.0
Stearic acid	1.0
Sulfur	1.5
Altax	1.25
Dibutyl Phthalate	2.5
SRF black (Furnex beads)	70.0

Cured at 170°C for 15 minutes
Durometer A-56

TABLE 72

Effect of Rubber Composition XP-63 (VS2-117-2) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.31	1.42	4.67	2.94	0.67	0.50	0.44	0.78
Black powder A-5	0.31	0.35	0.48	0.00	0.43	1.04	2.66	3.41
Cyclonite	0.31	0.35	0.51	0.00	0.19	0.20	0.17	0.23
Double base propellant	0.40	11.68	10.30	0.00	13.14	12.40	11.90	11.66
Ednatol 55/45	0.31	0.84	3.22	2.07	1.06	0.80	0.78	1.20
Explosive D	0.31	0.33	0.33	0.00	0.16	0.33	0.38	0.24
Haleite	0.31	0.65	1.37	0.41	0.27	0.46	0.41	0.51
PEP-3	0.31	0.23	0.88	0.34	—	0.86	0.90	1.27
PETN	0.52	0.52	1.20	0.08	0.34	0.54	0.40	0.58
Pentolite 50/50	0.31	1.84	1.94	0.00	3.52	3.19	3.74	2.88
Picratol 52/48	0.31	0.46	0.42	0.00	0.28	0.27	0.12	0.18
RDX-Comp A-3	0.31	0.60	0.47	0.00	0.11	0.16	0.17	0.14
RDX-Comp B	0.31	0.53	0.60	0.00	0.13	0.10	0.12	0.16
RDX-Comp C-3	0.31	0.99	1.69	0.39	0.97	0.62	0.61	0.61
Single base propellant	0.17	0.17	0.24	0.00	0.10	0.15	0.24	—
T-9 (CP-492)	0.31	0.19	0.24	0.00	0.91	2.28	2.38	2.86
TNT	0.31	0.18	0.52	0.03	0.07	0.01	0.04	0.06
Tetryl	0.31	0.35	1.37	0.71	0.17	0.17	0.23	0.20
Tetrytol 75/25	0.31	4.77	7.48	2.40	7.88	7.19	7.41	8.27
Torpex	0.31	0.22	0.68	0.15	0.28	0.12	0.17	0.31
Tritonal 75/25	0.31	0.12	0.36	0.00	0.11	0.10	0.07	0.14

Composition of XP-63

Hycar OR-15	100.0
ZnO	5.0
Stearic acid	1.0
Sulfur	1.5
Altax	1.5
Cumar-Indene resin (soft)	10.0
Dibutyl phthalate	15.0
SRF (black)	60.0
MPC (black Apheron 6)	40.0

Cured at 162°C for 20 minutes

TABLE 73

Effect of Rubber Composition XP-64 (VS2-111-2) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.27	1.42	6.27	4.58	0.77	0.80	0.77	1.03
Black powder A-5	0.27	0.35	0.51	0.00	0.52	1.29	3.81	4.84
Cyclonite	0.27	0.35	0.27	0.00	0.19	0.22	0.19	0.24
Double base propellant	0.30	11.68	10.72	0.00	16.10	14.42	14.44	15.18
Ednatol 55/45	0.27	0.84	2.21	1.07	0.98	0.75	0.86	0.97
Explosive D	0.27	0.33	0.16	0.00	0.15	0.28	0.23	0.24
Haleite	0.27	0.65	0.66	0.00	0.33	0.41	0.33	0.45
PEP-3	0.27	0.23	0.78	0.38	—	0.69	0.85	1.14
PETN	0.70	0.52	1.00	0.00	0.28	0.44	0.38	0.46
Pentolite 50/50	0.27	1.84	1.79	0.00	11+	11+	11+	11+
Picratol 52/48	0.27	0.46	0.40	0.00	0.31	0.29	0.23	0.23
RDX-Comp A-3	0.27	0.60	0.31	0.00	0.09	0.19	0.20	0.23
RDX-Comp B	0.27	0.53	0.56	0.00	0.15	0.18	0.13	0.23
RDX-Comp C-3	0.27	0.99	2.26	1.00	1.11	1.36	0.98	0.72
Single base propellant	0.14	0.17	0.19	0.00	0.16	0.14	0.09	0.24
T-9 (CP-492)	0.27	0.19	0.25	0.00	1.83	1.96	1.72	2.26
TNT	0.27	0.18	0.36	0.00	0.08	0.03	0.05	0.03
Tetryl	0.27	0.35	0.73	0.11	0.19	0.16	0.35	0.20
Tetrytol 75/25	0.27	4.77	6.03	0.99	9.17	7.26	8.28	9.54
Torpex	0.27	0.22	0.55	0.06	0.15	0.12	0.18	0.27
Tritonal 75/25	0.27	0.12	0.34	0.00	0.16	0.09	0.10	0.13

Composition of XP-64

GRM-10	100.0
Neozone A	2.0
Extra light calcined MgO	4.0
ZnO	5.0
Stearic acid	1.0
Circo light process oil	10.0
Petrolatum	1.0
Furnex beads (SRF black)	50.0

Cured at 157-160°C for 10 minutes

TABLE 74

Effect of Rebber Composition XP-65 (VS2-118-1) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.32	1.42	5.79	4.05	1.60	1.19	0.77	0.54
Black powder A-5	0.32	0.35	0.47	0.00	0.52	1.29	1.87	3.09
Cyclonite	0.32	0.35	0.57	0.00	0.18	0.25	0.23	0.28
Double base propellant	0.64	11.68	12.18	0.00	11.78	8.34	6.06	4.42
Ednatol 55/45	0.32	0.84	3.23	2.07	0.74	0.88	0.70	1.04
Explosive D	0.32	0.33	0.42	0.00	0.15	0.26	0.21	0.26
Haleite	0.32	0.65	1.48	0.51	0.28	0.51	0.35	0.63
PEP-3	0.32	0.23	1.54	0.99	—	0.84	1.14	1.25
PETN	0.68	0.52	2.08	0.88	0.60	0.70	0.54	0.82
Pentolite 50/50	0.32	1.84	2.20	0.04	11 +	3.35	3.38	2.75
Picratol 52/48	0.32	0.46	0.54	0.00	0.26	0.24	0.12	0.21
RDX-Comp A-3	0.32	0.60	0.52	0.00	0.10	0.17	0.30	0.23
RDX-Comp B	0.32	0.53	0.49	0.00	0.10	0.11	0.11	0.18
RDX-Comp C-3	0.32	0.99	2.30	0.99	1.19	0.97	0.88	0.62
Single base propellant	0.31	0.17	0.22	0.00	0.15	0.19	0.26	0.27
T-9 (CP-492)	0.32	0.19	0.24	0.00	1.04	4.31	11+	11+
TNT	0.32	0.18	0.63	0.13	0.05	0.02	0.03	0.07
Tetryl	0.32	0.35	1.36	0.69	0.20	0.16	0.25	0.19
Tetrytol 75/25	0.32	4.77	5.71	0.62	8.66	8.10	11+	10.57
Torpex	0.32	0.22	0.64	0.10	0.36	0.28	0.31	0.23
Tritonal 75/25	0.32	0.12	0.55	0.11	0.14	0.10	0.14	0.15

Composition of XP-65

Neoprene FR	100.0
Neozone A	2.0
Philblack 0	35.0
P-33	35.0
Dibutyl phthalate	10.0
Stearic Acid	1.5
Sulfur	1.0
Lead oxide (PbO)	10.0

Cured at 162°C for 10 minutes

TABLE 75

Effect of Rubber Composition XP-66 (VS2-119-1) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.44	1.42	3.18	1.32	0.56	0.59	0.69	0.78
Black powder A-5	0.44	0.35	0.45	0.00	0.64	2.66	11+	11+
Cyclonite	0.44	0.35	0.37	0.00	0.18	0.17	0.21	0.23
Double base propellant	0.86	11.68	11.92	0.00	12.44	11.58	11.42	12.34
Ednatol 55/45	0.44	0.84	1.14	0.00	0.60	0.69	0.65	0.79
Explosive D	0.44	0.33	0.42	0.00	0.16	0.25	0.29	0.27
Haleite	0.44	0.65	0.62	0.00	0.27	0.46	0.29	0.52
PEP-3	0.44	0.23	0.74	0.07	—	—	—	—
PETN	0.98	0.52	0.98	0.00	0.46	0.86	0.98	1.02
Pentolite 50/50	0.44	1.84	11+	>8.72	11+	11+	11+	11+
Picratol 52/48	0.44	0.46	0.44	0.00	0.34	0.23	0.21	0.39
RDX-Comp A-4	0.44	0.60	0.57	0.00	0.25	0.17	0.19	0.19
RDX-Comp B	0.44	0.53	0.60	0.30	0.14	0.14	0.11	0.21
RDX-Comp C-3	0.44	0.99	1.77	0.34	1.39	1.31	1.22	1.11
Single base propellant	0.55	0.17	0.26	0.00	0.14	0.13	0.34	0.38
T-9 (CP-492)	0.44	0.19	1.33	0.70	1.80	1.92	1.71	2.38
TNT	0.44	0.18	0.48	0.00	0.09	0.00	0.05	0.12
Tetryl	0.44	0.35	0.60	0.00	0.12	0.13	0.19	0.27
Tetrytol 75/25	0.44	4.77	4.64	0.00	5.23	3.74	5.21	8.00
Torpex	0.44	0.22	0.45	0.00	0.10	0.09	0.21	0.15
Tritonal 75/25	0.44	0.12	0.45	0.00	0.08	0.06	0.20	0.10

Composition of XF-56

GR-I Butyl	100.0
MPC black	50.0
ZnO	5.0
Stearic acid	3.0
Sulfur	2.0
Captax	0.5
Thiuram M	1.0
Vistax No. 1	6.0

Cured at 162°C for 15 minutes

TABLE 76

Effect of Rubber Composition XP-67 (VS2-118-2) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.12	1.42	11+	>9.46	1.92	3.33	3.73	2.81
Black powder A-5	0.12	0.35	0.31	0.00	0.50	0.89	2.30	2.82
Cyclonite	0.12	0.35	0.33	0.00	0.18	0.19	0.19	0.21
Double base propellant	0.34	11.68	11.12	0.00	12.12	—	—	—
Ednatol 55/45	0.12	0.84	3.24	2.28	11+	7.21	1.19	—
Explosive D	0.12	0.33	3.19	0.00	0.13	0.27	0.21	0.28
Haleite	0.12	0.65	1.05	0.28	0.28	11+	—	—
PEP-3	0.12	0.23	0.75	0.40	—	—	—	—
PETN	0.38	0.52	0.98	0.08	Detonated		—	—
Pentolite 50/50	0.12	1.84	11+	>9.0+	—	—	—	—
Picratol 52-48	0.12	0.46	0.47	0.00	0.68	0.84	0.51	—
RDX-Comp A-3	0.12	0.60	0.40	0.00	0.14	0.16	0.15	0.15
RDX-Comp B	0.12	0.53	0.56	0.00	0.17	0.28	0.27	0.26
RDX-Comp C-3	0.12	0.99	2.10	0.99	1.50	1.06	0.85	1.84
Single base propellant	0.24	0.17	0.25	0.00	0.09	0.17	0.26	0.24
T-9 (CP-492)	0.12	0.19	0.18	0.00	2.29	5.01	5.95	11+
TNT	0.12	0.18	0.46	0.16	0.51	0.13	0.23	0.31
Tetryl	0.12	0.35	0.57	0.10	0.19	0.18	0.27	0.38
Tetrytol 75/25	0.12	4.77	8.86	3.97	9.72	9.03	11+	11.64
Torpex	0.12	0.22	0.51	0.17	0.32	0.25	0.22	0.34
Tritonal 75/25	0.12	0.12	0.31	0.07	0.16	0.13	0.08	0.45

Composition of XP-67

Thiokol ST	100.0
Stearic acid	1.0
GMF (p quinone dioxime)	1.5
ZnO	0.5
SRF (black)	60

Cured at 162°C for 10 minutes

TABLE 77

Effect of Rubber Silastic No. 180 (VS 2-120-1) on Stability

Explosive or Propellant	Rubber Control	Expl or Prop Control	Mixture	Gas Evolved Before Storage	Increase 6 mo	Increase 12 mo	Increase 18 mo	Increase 24 mo
Amatol 60/40	0.33	1.42	1.08	0.00	0.52	0.39	0.42	0.45
Black powder A-5	0.33	0.35	0.35	0.00	0.55	0.94	11+	11+
Cyclonite	0.33	0.35	0.28	0.00	0.16	0.25	0.20	0.20
Double base propellant	0.50	11.68	10.66	0.00	11.94	9.62	8.18	9.38
Ednatol 55/45	0.33	0.84	0.91	0.00	0.62	0.69	0.73	0.86
Explosive D	0.33	0.33	0.39	0.00	0.16	0.28	0.26	0.25
Haleite	0.33	0.65	0.74	0.00	0.31	0.46	0.33	0.59
PEP-3	0.33	0.23	0.17	0.00	—	0.27	0.03	0.52
PETN	0.56	0.52	0.60	0.00	0.56	0.58	0.44	0.48
Pentolite 50/50	0.33	1.84	1.69	0.00	2.78	2.77	2.23	2.23
Picratol 52/48	0.33	0.46	0.45	0.00	0.35	0.33	0.25	0.29
RDX-Comp A-3	0.33	0.60	0.46	0.00	0.16	1.00	0.14	0.22
RDX-Comp B	0.33	0.53	0.51	0.00	0.12	0.13	0.17	0.14
RDX-Comp C-3	0.33	0.99	1.02	0.00	1.03	1.17	1.40	0.41
Single base propellant	0.20	0.17	0.16	0.00	0.14	0.16	0.23	0.24
T-9 (CP-492)	0.33	0.19	0.35	0.00	1.71	1.50	0.97	1.35
TNT	0.33	0.18	0.32	0.00	0.05	0.04	0.07	0.04
Tetryl	0.33	0.35	0.25	0.00	0.08	0.14	0.17	0.27
Tetrytol 75/25	0.33	4.77	3.04	0.00	2.44	1.82	2.02	3.36
Torpex	0.33	0.22	0.18	0.00	0.11	0.08	0.11	0.12
Tritonal 75/25	0.33	0.12	0.18	0.00	—	—	—	—

Composition of Silastic No. 180

Not available. Proprietary with manufacturer, Dow Corning Company.

TABLE 78

Effects of Explosives on Rubbers

Explosive or Propellant	Hycar OR 25 (XP-62) Shore Hardness	Hycar OR 25 (XP-62) Condition	GRN-10 (XP-64) Shore Hardness	GRN-10 (XP-64) Condition	GR-S (XP-54) Shore Hardness	GR-S (XP-54) Condition	Natural (XP-55) Shore Hardness	Natural (XP-55) Condition	Natural (XP-56) Shore Hardness	Natural (XP-56) Condition
Amatol 60/40	78D	Black, brittle	53D	Black, flexible	—	—	—	Black, brittle	82D	Black, brittle, very hard
Black powder A-5	88D	Black, brittle	—	Black, flexible[a]	77D	Brittle, black	78D	Black, brittle	91D	Black, brittle
Cyclonite	88A	Black, flexible	88A	Black, flexible	—	Black, brittle	80D	Black, brittle	77D	Black, brittle
Double-base propellant	77A$_2$	Black, flexible[a]	47A$_2$	Black, flexible	47D	90°[b]	—	Black, brittle	53D	Black, brittle
Ednatol 55/45	—	Black, brittle	47D	Black, flexible[a]	74D	Black, brittle	—	Black, brittle	75D	Black, brittle
Explosive D	91A$_2$ (45D)	Black, flexible	89A$_2$ (36D)	Black, flexible	74D	Black, flexible	78D	Black, brittle	73D	Black, brittle
Haleite	53D	Black, slightly flexible	84D	Black, flexible	62D	Black, brittle	85D	Black, brittle	79D	Black, brittle
PEP-3	80D	Black, brittle	—	Black, brittle	—	Black, brittle	—	Black, brittle	—	Black, brittle
PETN	—	Black, brittle	63D	Black, slightly flexible	80D	Black, brittle	77D	Black, brittle	84D	Black, brittle
Pentolite 50/50	—	Black, brittle	—	Black, brittle	—	Black, brittle	—	Black, brittle	—	Black, brittle
Picratol 52/48	75D	Black, brittle	93A$_2$ (45D)	Black, flexible	—	Black, brittle	—	Black, brittle	90D	Black, brittle
RDX-Comp A-3	58D	Black, brittle	45D	Black, flexible, tough	—	Black, brittle, very hard	—	Black, brittle, very hard	—	Black, brittle very hard
RDX-Comp B	—	Black, brittle very hard	44D	Black, brittle, resilient	72D	Black, brittle hard	—	Black, brittle	—	Black, brittle, very hard
RDX-Comp C-3	—	Black, brittle very hard	—	Black, brittle	—	Black, brittle	—	Black, brittle	—	Black, brittle
Single-base propellant	83A$_2$	Black, flexible	75A$_2$	Black, flexible	77A$_2$	Black, flexible	42D (75A$_2$)	Black, flexible[a]	93A$_2$ (40D)	Black, flexible
T-9 (CP-492)	94A$_2$ (46D)	Black, flexible[a]	84A$_2$ (35D)	Black, flexible	—	Black, brittle	—	Black, brittle	—	Black, brittle
TNT	95A$_2$	Black, very brittle	94A$_2$	Black, flexible	75D	Black, very brittle	58D	Black, brittle	78D	Black, brittle
Tetryl	—	Black, brittle	92A$_2$	Black, flexible	55D	Black, brittle	78D	Black, brittle	60D	Black, brittle
Tetrytol 75/25	—	Black, brittle	—	Black, brittle	—	Black, brittle	—	Black, very brittle	—	Black, brittle
Torpex	—	Black, brittle	—	Black, brittle, but very stiff	—	Black, brittle	—	Black, brittle	—	Black, brittle
Tritonal 75/25	—	Black, brittle	50D	Black, flexible[a]	—	Black, brittle	87D	Black, brittle	—	—

[a] Bends 180° before breaking.

[b] Bends 90° before breaking.

TABLE 78 (Continued)

Explosive or Propellant	Hycar OR-15 (XP-63) Shore Hardness	Hycar OR-15 (XP-63) Condition	Neoprene FR (XP-65) Shore Hardness	Neoprene FR (XP-65) Condition	Thiokol ST (XP-67) Shore Hardness	Thiokol ST (XP-67) Condition	Butyl GR-I (XP-66) Shore Hardness	Butyl GR-I (XP-66) Condition	Silastic 180 Shore Hardness	Silastic 180 Condition
Amatol 60/40	92D	Black, brittle	85D	Dark brown with black spots, brittle	—	Black, porous breaks easily when flexed	$60A_2$	Black, flexible	$83A_2$	White, brittle
Black powder A-5	77D	Black, brittle	90D	Black, brittle	$10A_2$	Black, very poor cohesion	$52A_2$	Black, flexible	$88A_2$	White, flexible
Cyclonite	68D	Black, slightly flexible	80D	Black, brittle	Too low to read on A_2 scale	Poor cohesion	$58A_2$	Black, flexible	$87A_2$	White, flexible
Double-base propellant	$87A_2$	90°[b]	$75A_2$	Brittle	—	—	$45A_2$	Black, flexible	$86A_2$	White, flexible
Ednatol 55/45	—	Black, brittle	87D	Black, brittle	—	Black, brittle	$64A_2$	Black, brittle	$83A_2$	Flexible[a]
Explosive D	67D	Flexible[a]	85D	Black, brittle	—	Black, very soft	52D	Black, flexible	86D	Flexible[a]
Haleite	77D	Black, brittle	87D	Black, brittle	—	—	$53A_2$	Black, flexible	$86A_2$	White, flexible
PEP-3	—	Black, brittle	65D	Black, brittle	—	—	—	—	$82A_2$	White, flexible
PETN	82D	Black, brittle	57D	Black, brittle	—	Black, brittle, very friable	$38A_2$	Black, flexible	$87A_2$	White, flexible
Pentolite 50/50	88D	Black, brittle	—	Black, brittle	83D	Black, brittle	$60A_2$	Black, brittle, cracks on bending	$76A_2$	White, flexible
Picratol 52/48	—	Black, brittle	87D	Black, brittle	—	Brittle, partly disintegrated	$72A_2$	Black, flexible	$84A_2$	White, flexible
RDX-Comp A-3	—	Black, brittle, hard	86D	Black, brittle	—	Black, very soft, low tensile	$48A_2$	Black, flexible	$80A_2$	White, flexible
RDX-Comp B	—	Black, brittle, hard	85D	Black, brittle	72D	Black, brittle	$86A_2$	Black, flexible	$83A_2$	White, flexible
RDX-Comp C-3	—	Black, brittle	—	Black, brittle	—	Black, very soft	$53A_2$	Black, flexible, resilient	$75A_2$	White, flexible
Single-base propellant	$93A_2$ (50D)	Black, flexible	$84A_2$ (29D)	Black, flexible	$64A_2$ (15D)	Black, flexible	$53A_2$ (15D)	Black, flexible	$83A_2$ (23D)	White, flexible
T-9 (CP-492)	64D	Black, brittle	70D	Black, brittle	$22A_2$	Black, very poor adhesion	$37A_2$	Black, brittle	$80A_2$	White, flexible
TNT	—	Black, brittle	80D	Black, brittle	—	Black, brittle	$58A_2$	Black, flexible	$79A_2$	White, flexible
Tetryl	73D	Black, brittle	80D	Black, brittle	$28A_2$	Black, flexible	$45A_2$	Black, flexible	$83A_2$	White, flexible

[a] Bends 180° before breaking.
[b] Bends 90° before breaking.

TABLE 79

Percent Change in Weight of Rubbers after Storage

Polymeric Material	Explosive	Storage, weeks	Temperature °C	Change of Wt. of Control, %	Change of Wt of Contact, %	Picatinny Report No.
Briggs No. 107 (Butadiene/ Acrylonitrile)	M-7	48	76	+6.536	+10.638	57-TM2-33
	M-9	48	76	+6.536	+35.445	57-TM2-33
	M-17	48	76	+6.536	+32.629	57-TM2-33
Buna-N-o-rings Butadiene/ Acrylonitrile	T-16	28	50	+0.24	+55.80	56-M2-41
Butyl rubber-5N259	Comp B	38	76	+1.563	+11.66	55-M2-20
	Tetryl	38	76	+1.563	+5.30	55-M2-20
	TNT	38	76	+1.563	+10.29	55-M2-20
Dioxime No. 1 (Butyl rubber)	Comp B	9	76	-0.69	+10.2	52-M2-85
	Tetryl	9	75	-0.69	+1.96	52-M2-85
Dioxime No. 2	Comp B	9	76	-0.64	+5.81	52-M2-85
	Tetryl	9	76	-0.64	+0.66	52-M2-85
E. C. No. 776 (3M)	PBX	52	76	-6.91	-3.06	56-M2-29
	PETN	52	76	-6.91	-1.33	56-M2-29
	Tetryl	52	76	-6.91	-2.17	56-M2-29
E. C. No. 833 (3M)	PBX	52	76	+1.64	+6.79	56-M2-29
	PETN	52	76	+1.64	+5.27	56-M2-29
	Tetryl	52	76	+1.64	+3.29	56-M2-29
E. C. No. 847 (3M)	PBX	52	76	-0.57	+4.92	56-M2-29
	PETN	52	76	-0.57	+7.37	56-M2-29
	Tetryl	52	76	-0.57	+3.30	56-M2-29

TABLE 79 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature °C	Change of Wt. of Control, %	Change of Wt of Contact, %	Picatinny Report No.
GR-I	JPN	24	50	−0.48	+64.2	53-M2-4
Iso butylene-	MRP	24	50	−0.48	+55.0	53-M2-4
isoprene	T-2	24	50	−0.48	+53.60	53-M2-4
	T-8	24	50	−0.48	+40.60	53-M2-4
GR-M	JPN	24	50	+3.32		53-M2-4
Neoprene	MRP	24	50	+3.32	+21.80	53-M2-4
	T-2	24	50	+3.32	+34.00	53-M2-4
	T-8	24	50	+3.32	+20.80	53-M2-4
GR-S	JPN	26	50	+0.20	+11.0	53-M2-4
Butadiene/Styrene	MRP	24	50	+0.20	+ 8.42	53-M2-4
	T-2	24	50	+0.20	+12.11	53-M2-4
	T-8	24	50	+0.20	+9.91	53-M2-4
Monocork No. 100	JPN	26	50	−0.71	+3.25	53-M2-4
	MRP	26	50	−0.71	+2.15	53-M2-4
	T-2	26	50	−0.71	+3.16	53-M2-4
	T-8	26	50	−0.71	+2.94	53-M2-4
Monocork No. 500	JPN	26	50	+0.04	+12.50	53-M2-4
	MRP	26	50	+0.04	+12.10	53-M2-4
	T-2	26	50	+0.04	+11.00	53-M2-4
	T-8	26	50	+0.04	+11.70	53-M2-4
Rubber Composition	Comp B	20	76	+1.61	+35.6	56-M2-68
325-453	RDX	20	76	+1.61	+1.58	56-M2-68
GRS	Tetryl	20	75	+1.61	+8.75	56-M2-68
	TNT	20	76	+1.61	+33.8	56-M2-68

TABLE 79 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature °C	Change of Wt. of Control, %	Change of Wt of Contact, %	Picatinny Report No.
Rubber Compositions						
SX-1883	M-6	8	50	−0.10	+0.03	52-M2-45
SX-1884	M-6	8	50	−0.06	+0.12	52-M2-45
5420-15	M-6	8	50	−0.84	−0.69	52-M2-45
5420-45	M-6	8	50	−0.48	−0.64	52-M2-45
5420-60	M-6	8	50	−0.52	−0.74	52-M2-45
PS-10-13N	M-6	8	50	−0.16	+0.45	52-M2-45
RF-60	M-6	8	50	+0.02	+0.14	52-M2-45
Rubber Stoppers No. 7	T-16	8	50	−0.68	+2.13	52-M2-23
Rubber Composition						
XP-203-Neoprene	OIO	9	50	−0.02	+2.97	56-M2-59
XP-206-GRS	T-6	24	50	−0.12	+6.64	56-M2-59
XP-202-Neoprene	T-6	24	50	+0.69	+6.06	56-M2-59
XP-218-Paracril BJ	OGK	12	50	−0.36	+10.5	56-M2-59
SFR-172-3	M-1	48	76	−1.44	+5.29	57-TM2-33
	M-9	48	76	−1.44	+71.8	57-TM2-33
	M-17	48	76	−1.44	+74.9	57-TM2-33
SFR-172-2	M-1	48	76	−1.16	−1.50	57-TM2-33
	M-9	48	76	−1.16	+65.80	57-TM2-33
	M-17	48	76	−1.16	+77.02	57-TM2-33
Scotchweld No. 585 (cured)	M-1	24	76	+5.04	+15.9	56-M2-38
(uncured)	M-1	24	76	+1.52	−0.31	56-M2-38
Sulfur No. 1	Comp B	9	76	−0.24	+10.02	52-M2-85
Butyl rubber	Tetryl	9	76	−0.24	+1.92	52-M2-85
Sulfur No. 2	Comp B	9	76	−0.45	+8.70	52-M2-85
	Tetryl	9	76	−0.45	+1.21	52-M2-85

TABLE 79 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature °C	Change of Wt of Control, %	Change of Wt of Contact, %	Picatinny Report No.
Presstite No. 106	M-9	8	50	−0.01	+0.27	52-M2-173
Thiokol LP-2	Comp A-3	12	76	−0.421	−1.76	55-M2-57
	M-1	12	76	−0.421	−0.928	55-M2-57
	M-8	12	50	−0.025	+24.61	55-M2-57
	M-9	12	50	−0.025	+19.02	55-M2-57
Thiokol 1605AH	JPN	26	50	+0.17	+2.24	53-M2-4
	MRP	24	50	+0.17	+1.71	53-M2-4
	T-2	24	50	+0.17	+1.63	53-M2-4
	T-8	24	50	+0.17	+1.31	53-M2-4
Thiokol 1620 AH	JPN	26	50	−0.35	+23.58	53-M2-4
	MRP	24	50	−0.35	+15.80	53-M2-4
	T-2	24	50	−0.35	+15.61	53-M2-4
	T-8	24	50	−0.35	+12.23	53-M2-4
Thiokol 3000FA	JPN	26	50	−0.24	+9.31	53-M2-4
	MRP	24	50	−0.24	+9.98	53-M2-4
	T-2	24	50	−0.24	+9.54	53-M2-4
	T-8	24	50	−0.24	+8.01	53-M2-4
Thiokol 3000 PR-I	JPN	21	50	−0.12	+7.41	53-M2-4
	MRP	24	50	−0.12	+8.36	53-M2-4
	T-2	24	50	−0.12	+7.68	53-M2-4
	T-8	24	50	−0.12	+6.60	53-M2-4
Thiokol 3000 ST	JPN	21	50	−0.28	+17.11	53-M2-4
	MRP	24	50	−0.28	+17.81	53-M2-4
	T-2	24	50	−0.28	+16.31	53-M2-4
	T-8	24	50	−0.28	+12.22	53-M2-4

TABLE 79 (Continued)

Polymeric Material	Explosive	Storage, weeks	Temperature °C	Change of Wt of Control, %	Change of Wt of Contact, %	Picatinny Report No.
Thiokol 3600ST Polysulfide rubber	JPN	21	50	−0.37	+17.24	53-M2-4
	MRP	24	50	−0.37	+15.36	53-M2-4
	T-2	24	50	−0.37	+15.74	53-M2-4
	T-8	24	50	−0.37	+12.68	53-M2-4
Silastic No. 150 Silicone rubber	JPN	26	50	+0.18	+0.67	53-M2-4
	MRP	26	50	+0.18	+0.71	53-M2-4
	T-2	26	50	+0.18	+1.43	53-M2-4
	T-8	26	50	+0.18	+1.42	53-M2-4
Silastic No. 180 Silicone rubber	JPN	26	50	−0.04	+0.30	53-M2-4
	MRP	26	50	−0.04	+0.36	53-M2-4
	T-2	26	50	−0.04	+0.82	53-M2-4
	T-8	26	50	−0.04	+0.65	53-M2-4

TABLE 80

Vacuum Stability Test Results for Rubber and Rubber Derivatives

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Armstrong N-111	Blackpowder	100	0.58	0.35	0.99	0.06	Negligible	53-M2-26
(G. R. A-Phenolic	Comp B	100	0.58	0.35	3.35	2.42	Slight	53-M2-26
rubber)	Fuze powder	100	0.45	0.35	0.40	0.00	None	54-M2-14
	M-1	90	0.27	0.29	0.38	0.00	None	53-M2-26
	M-2	90	0.57	2.52	3.98	0.89	Negligible	52-M2-84
	Nitrated yarn	100	0.45	1.29	1.34	0.00	None	54-M2-14
	Tetryl	100	0.58	0.44	2.18	1.16	Very slight	53-M2-26
Armstrong N-171	Black powder	100	0.38	0.35	0.68	0.00	None	53-M2-26
(synthetic rubber)	Comp B	100	0.38	0.35	1.50	0.77	Negligible	53-M2-26
Buna N-base	M-1	90	0.19	0.29	0.31	0.00	None	53-M2-26
	Tetryl	100	0.38	0.44	2.14	1.33	Very slight	53-M2-26
	SW-11452-25	100	0.26	0.13	0.26	0.00	None	52-M2-155
Armstrong J-1140D	Comp A	100	0.44	0.37	0.41	0.00	None	52-M2-110
(chlorinated rubber)	Comp B	100	0.44	0.36	0.52	0.00	None	52-M2-110
	Comp C-3	100	0.44	1.25	2.79	1.10	Very slight	52-M2-110
	Comp C-4	100	0.44	0.29	0.43	0.00	None	52-M2-110
	Pentolite 50/50	100	0.44	2.11	1.62	0.00	None	52-M2-110
	PETN	100	1.30	0.46	1.30	0.00	None	52-M2-110
	RDX	100	0.44	0.30	2.47	0.00	None	52-M2-110
	Tetrytol 75/25	100	0.44	4.30	8.40	3.66	Moderate	52-M2-110
	TNT	100	0.44	0.21	0.31	0.00	None	52-M2-110
Adhesive A-4000	Composition B	100	0.06	0.82	0.63	0.00	None	55-H1-395
	Tetryl	100	0.06	0.36	0.25	0.00	None	55-H1-395
Adhesive XC-269	Black powder					0.00	None	53-H1-1790
Adhesive XC-271	Black powder	100	0.06	0.82	0.63	0.00	None	55-H1-2083
	Tetryl	100	0.06	0.36	0.25	0.00	None	55-H1-2083

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Bondmaster M-373 (synthetic rubber)	Black powder	100	0.38	0.45	0.87	0.04	Negligible	56-M2-80
Brigg's 107		100						
Butadiene/Acrylonitrile	M-1	100	0.20	0.38	0.46	0.00	None	57-TM2-33
	M-9	100	0.33	5.86	6.15	0.00	None	57-TM2-33
	M-17	100	0.20	2.28	3.33	0.85	Negligible	57-TM2-33
Buna-N-o-rings (Butadiene/ Acrylonitrile)	OGK	90	0.49	0.81	2.40	1.10	Very slight	56-M2-66
	T-16	90	0.01	2.66	4.28	1.61	Very slight	56-M2-41
Butyl rubber SN-259	Comp B	100	0.50	0.25	0.60	0.00	None	55-M2-20
	Tetryl	100	0.50	0.23	0.45	0.00	None	55-M2-20
	TNT	100	0.50	0.14	0.58	0.00	None	55-M2-20
Dex-o-Tex Neoprene Conductive	M-2	90	0.19	2.81	3.54	0.55	Negligible	57-M2-1
	M-9	90	0.19	6.81	6.16	0.00	None	57-M2-1
	M-17	90	0.19	3.09	3.13	0.00	None	57-M2-1
	RDX	100	0.19	0.30	0.30	0.00	None	57-M2-1
	TNT	100	0.19	0.15	0.59	0.25	Negligible	57-M2-1
	M-15	90	0.19	1.76	2.17	0.22	Negligible	57-M2-1
Dioxime No. 1 Butyl rubber	Comp B	100	0.48	0.28	0.85	0.00	None	52-M2-85
	Lead Azide	100	0.41	0.51	0.38	0.00	None	52-M2-85
	M-18-Primer mix	100	0.41	0.37	0.41	0.00	None	52-M2-85
	Tetryl	100	0.48	0.61	0.75	0.00	None	52-M2-85
Dioxime No. 2 Butyl rubber	Comp B	100	0.56	0.28	0.44	0.00	None	52-M2-85
	Lead azide	100	0.77	0.51	0.57	0.00	None	52-M2-85
	M-18 Primer mix	100	0.77	0.37	0.43	0.00	None	52-M2-85
	Tetryl	100	0.56	0.61	0.71	0.00	None	52-M2-85
Dispersite 1789 (Reclaim rubber)	Comp C-3	100	0.16	1.05	3.04	1.83	Very slight	133744
	Comp C-4	100	0.16	0.22	0.30	0.00	None	133744
Dispersite 1822A Butyl rubber	Comp C-3	100	0.69	1.05	3.54	1.80	Very slight	133744
	Comp C-4	100	0.69	0.22	0.67	0.00	None	133744

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
E. C. No. 250 (3M) (synthetic rubber)	Comp C-3	100	0.23	1.47	2.70	1.00	Negligible	55-M2-21
E. C. No. 373 (3M) (reclaim rubber)	RDX	100	0.55	0.47	0.68	0.00	None	53-H1-1347
E. C. No. 711 (3M)	Comp B	100	0.51	0.25	0.76	0.00	None	55-M2-19
(Oil resistant elastomer)	Comp C-3	100	0.14	1.47	1.66	0.05	Negligible	55-M2-21
	Tetryl	100	0.51	0.23	1.20	0.46	Negligible	55-M2-19
	TNT	100	0.51	0.14	0.49	0.00	None	55-M2-19
E. C. No. 770 (3M)	Black powder	100	0.36	0.68	0.89	0.00	None	137253
Reclaim rubber	T-2	90	0.36	6.17	6.07	0.00	None	137253
E. C. No. 776 (3M)	PBX	100	0.31	0.18	1.36	0.87	Negligible	56-M2-29
	PETN	100	0.58	0.62	0.80	0.00	None	56-M2-29
	Tetryl	100	0.31	0.50	2.47	1.66	Very slight	56-M2-29
E. C. No. 801 (3M)								
(Oil resistant Elastomer)	Comp A-3	100	0.25	0.41	1.07	0.41	Negligible	53-M2-76
	Cyclotol 75/25	100	0.25	0.31	1.32	0.76	Negligible	53-M2-76
	RDX	100	0.40	0.35	1.82	1.07	Very slight	53-M2-44
	RDX/Hystine	100	0.25	0.35	1.07	0.47	Negligible	53-M2-76
	Tetryl	100	0.40	0.26	2.42	1.96	Very slight	53-M2-44
E. C. No. 826 (3M)	Black powder	100	0.73	0.39	1.21	0.09	Negligible	54-M2-56
Buna-N-Synthetic rubber	Comp B	100	0.73	0.20	4.87	3.94	Moderate	54-M2-56
Oil Resistant Elastomer	M-7	90	0.78	2.38	4.89	1.73	Very slight	54-M2-56
	T-16	90	0.78	3.45	6.04	2.71	Slight	54-M2-56
	Tetryl	100	0.73	0.22	3.33	2.38	Slight	54-M2-56
E. C. No. 833 (3M)	PBX	100	0.21	0.18	0.80	0.41	Negligible	56-M2-29
Oil Soluble Elastomer	PETN	100	0.32	0.62	0.60	0.00	None	56-M2-29
	Tetryl	100	0.21	0.50	1.11	0.40	Negligible	56-M2-29

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
E. C. No. 847 (3M) Oil Resistant Elastomer	Black powder	100	1.20	0.39	1.08	0.00	None	54-42-56
	Comp A-3	100	1.92	0.41	1.39	0.00	None	53-M2-76
	Comp B	100	1.20	0.20	0.81	0.00	None	54-M2-56
	Cyclotol 75/25	100	1.92	0.31	0.86	0.00	None	53-M2-76
	M-7	90	1.46	2.38	2.57	0.00	None	54-M2-56
	PBX	100	0.27	0.18	0.20	0.00	None	56-M2-29
	PETN	100	0.56	0.62	0.96	0.00	None	56-M2-29
	RDX/Hystine	100	1.92	0.35	1.54	0.00	None	53-M2-76
	T-16	90	1.46	3.45	4.83	0.00	None	54-M2-56
	Tetryl	100	1.20	0.22	2.28	1.86	Very slight	54-M2-56
E. C. No. 870 Neoprene-Oil Resistant Elastomer	HBX-1	100	0.43	0.47	0.98	0.03	Negligible	55-M2-15
E. C. No. 981 Oil Soluble Elastomer	Comp B	100	0.17	0.28	0.42	0.00	None	54-H1-2106
	Picratol	100	0.17	0.26	0.39	0.00	None	54-H1-2106
	Tetryl	100	0.17	0.17	0.38	0.04	Negligible	54-H1-2106
	TNT	100	0.17	0.14	0.42	0.11	Negligible	54-H1-2106
	Tritonal	100	0.17	0.05	0.39	0.17	Negligible	54-H1-2106
E. C. No. 1022 Oil Resistant Elastomer	RDX	100	0.47	0.36	0.38	0.00	None	53-M2-44
	Tetryl	100	0.47	0.09	1.47	0.91	Negligible	53-M2-44
E. C. No. 1055 Oil Soluble Elastomer	Comp B	100	0.17	0.28	0.54	0.09	Negligible	54-H1-2106
	Picratol	100	0.17	0.26	0.42	0.00	None	54-H1-2106
	Tetryl	100	0.17	0.17	1.49	1.15	Very slight	54-H1-2106
	TNT	100	0.17	0.14	0.44	0.13	Negligible	54-H1-2106
	Tritonal	100	0.17	0.05	0.42	0.20	Negligible	54-H1-2106
E. C. No. 1113 Oil Resistant Elastomer	Comp B	100	0.09	0.21	0.35	0.05	Negligible	53-M2-96
	M-10	100	0.26	6.59	6.28	0.00	None	54-H1-256

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
E. C. No. 1126	Comp B	100	0.23	0.28	0.51	0.00	None	54-H1-2106
Oil Resistant	Picratol	100	0.23	0.26	0.25	0.00	None	54-H1-2106
Elastomer	Tetryl	100	0.23	0.17	0.49	0.09	Negligible	54-H1-2106
	TNT	100	0.23	0.14	0.34	0.00	None	54-H1-2106
	Tritonal	100	0.23	0.05	0.38	0.10	Negligible	54-H1-2106
E. C. No. 1202	Comp B	100	0.28	0.28	0.45	0.00	None	54-H1-2106
Oil Soluble Elastomer	Picratol	100	0.28	0.26	0.27	0.00	None	54-H1-2106
	Tetryl	100	0.28	0.17	0.36	0.00	None	54-H1-2106
	TNT	100	0.28	0.14	0.28	0.00	None	54-H1-2106
	Tritonal	100	0.28	0.05	0.31	0.00	None	54-H1-2106
E. C. No. 1236 (3M)	Black powder	100	1.67	0.39	1.20	0.00	None	54-M2-56
Oil Resistant	Comp B	100	1.67	0.20	0.78	0.00	None	54-M2-56
Elastomer	M-7	90	1.83	2.38	2.12	0.00	None	54-M2-56
	T-16	90	1.83	3.45	4.37	0.00	None	54-M2-56
	Tetryl	100	1.67	0.22	2.14	0.25	Negligible	54-M2-56
E. C. No. 1365	Comp B	100	0.26	0.14	0.46	0.00	None	54-M2-14
Butyl rubber base	Picratol	100	0.26	0.31	0.47	0.00	None	54-M2-14
	TNT	100	0.26	0.05	0.33	0.02	Negligible	54-M2-14
	Tetryl	100	0.26	0.20	0.42	0.00	None	54-M2-14
	Tritonal	100	0.26	0.26	0.48	0.00	None	54-M2-14
Dampcoat Enamel	Amatol 60/40	100	0.52	0.37	11	10.11	Excessive	51-8-1
	TNT	100	0.52	0.36	0.55	0.00	None	51-8-1
GR-I								
Government rubber—	JPN	90	0.20	2.36	1.75	0.00	None	53-M2-4
Isobutylene	MRP	90	0.20	1.71	1.86	0.00	None	53-M2-4
	T-2	90	0.20	7.22	5.18	0.00	None	53-M2-4
	T-8	90	0.20	2.04	1.92	0.00	None	53-M2-4

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
GR-M	JPN	90	0.22	2.36	5.43	2.85	Slight	53-M2-4
(Neoprene)	MRP	90	0.22	1.71	3.65	1.72	Very slight	53-M2-4
	T-2	90	0.22	7.22	4.93	0.00	None	53-M2-4
	T-8	90	0.22	2.04	1.63	0.00	None	53-M2-4
GR-S	JPN	90	0.32	2.36	1.56	0.00	None	53-M2-4
Butadiene/Styrene	MRP	90	0.32	1.71	2.50	0.47	Negligible	53-M2-4
	T-2	90	0.32	7.22	3.29	0.00	None	53-M2-4
	T-8	90	0.32	2.04	2.33	0.00	None	53-M2-4
GR-M10	Black powder	100	0.45	1.25	0.63	0.00	None	52-M2-141
(Neoprene)	Tetryl	100	0.47	0.57	2.64	1.60	Very slight	52-M2-141
Hycar-72-248	M-1	100	0.23	0.89	0.96	0.00	None	57-TM2-33
Butadiene/	M-9	100	0.28	5.90	6.45	0.27	Negligible	57-TM2-33
Acrylonitrile	M-17	100	0.23	2.30	3.47	0.94	Negligible	57-TM2-33
Monocork No. 100	JPN	90	0.34	2.51	2.36	0.00	None	53-M2-4
(Synthetic-base)	MRP	90	0.34	1.99	4.33	2.00	Very slight	53-M2-4
	T-2	90	0.34	6.37	7.70	0.99	Negligible	53-M2-4
	T-8	90	0.34	2.13	4.45	0.93	Very slight	53-M2-4
Monocork No. 500	JPN	90	0.17	2.51	5.16	2.48	Slight	53-M2-4
(Neoprene base)	MRP	90	0.17	1.99	11.00+	8.84+	Excessive	53-M2-4
	T-2	90	5.17	6.57	5.57	0.00	None	53-M2-4
	T-8	90	0.17	2.13	2.90	0.60	Very slight	53-M2-4
Plastiktrim	OGK	90	0.32	0.78	2.22	1.12	Very slight	52-M2-43
Reclaimed rubber	T-2	90	0.32	6.24	6.63	0.07	Negligible	52-M2-43
	T-6	90	0.32	4.97	5.87	0.64	Negligible	52-M2-43
	T-8	90	0.32	1.83	2.83	0.68	Negligible	52-M2-43
	T-9	90	0.32	0.14	0.37	0.00	None	52-M2-43

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Pliobond No. 20	Black powder	100	0.34	0.47	0.86	0.05	Negligible	53-H1-877
(Phenol-	Comp B	100	0.34	0.28	3.81	3.19	Moderate	53-M1-877
formaldehyde	M-1	100	0.34	1.78	3.37	1.25	Very slight	53-H1-877
synthetic rubber)	PETN	100	0.40	0.42	0.87	0.05	Negligible	55-M2-29
	T-2	90	0.54	7.58	10.30	2.18	Slight	52-M2-139
	Tetryl	100	0.34	0.44	3.72	2.94	Slight	53-H1-877
	Comp C-3	100	0.22	1.05	3.96	2.69	Slight	133744
	Comp C-4	100	0.22	0.22	2.34	1.90	Very slight	133744
Pliobond No. 30	Igniter Cmpd K-29	100	0.08	0.26	0.30	0.00	None	56-M2-20
	Incendiary Mix IM-68	100	0.08	2.11	3.67	1.48	Very slight	56-M2-20
	Incendiary Mix IM-136	100	0.56	0.32	1.17	0.29	Negligible	56-M2-20
	MOX-2B	100	0.56	0.22	1.31	0.53	Negligible	56-M2-20
	RDX	100	0.56	0.31	4.09	3.22	Moderate	56-M2-20
	Tetryl	100	0.56	0.46	3.42	2.40	Slight	56-M2-20
	Tracer Cmpd R-45	100	0.56	0.47	1.11	0.08	Negligible	56-M2-20
	Tritonal	100	0.24	0.07	1.26	0.95	Negligible	54-M2-15
	T-2	90	0.54	7.58	10.30	2.18	Slight	134165
	SW-11452-25 Pyro tech.	100	0.38	0.13	0.30	0.00	None	52-M2-155
	Incendiary Mix IM-142	100	0.56	0.28	0.78	0.00	None	56-M2-20
Rubber Comp 32S-453	Comp B	100	0.32	0.34	0.40	0.00	None	56-M2-68
(GR-S)	RDX	100	0.32	0.29	0.30	0.00	None	56-M2-68
	Tetryl	100	0.32	0.29	0.78	0.17	Negligible	56-M2-68
	TNT	100	0.32	0.07	0.31	0.00	None	56-M2-68
Rubber Comp SX-1883	M-6	90	0.25	0.49	0.43	0.00	None	52-M2-45
SX-1884	M-6	90	0.25	0.49	0.30	0.00	None	52-M2-45
5420-15	M-6	90	0.27	0.49	0.28	0.00	None	52-M2-45
Unknown 5420-45	M-6	90	0.29	0.49	0.35	0.00	None	52-M2-45
5420-60	M-6	90	0.26	0.49	0.32	0.00	None	52-M2-45
PS-10-13N	M-6	90	0.12	1.02	1.08	0.00	None	52-M2-45
W-4930	M-1	90	0.30	0.89	1.01	0.00	None	52-M2-112
W-4930	M-6	90	0.30	1.67	1.47	0.00	None	52-M2-112
W-4610B	M-2	90	0.26	3.41	3.63	0.00	None	52-M2-67
RF-60	M-6	90	0.20	0.49	0.35	0.00	None	52-M2-45

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Rubber stoppers No. 7	M-16	90	0.19	3.66	3.87	0.02	Negligible	52-M2-23
Natural rubber	M-2	90	0.19	0.66	0.50	0.00	None	54-H1-1183
Rubber Composition								
XP-203 Neoprene	OIO	90	0.20	0.97	1.07	0.00	None	56-M2-59
	T-6	90	0.23	4.91	4.39	0.00	None	56-M2-59
XP76	M-7	90	0.25	2.08	2.63	0.30	Negligible	135788
XP-206-GRS	T-6	90	0.31	4.91	5.03	0.00	None	56-M2-59
XP-218-Paracril BJ	OGK	90	0.25	0.99	2.18	0.94	Negligible	56-M2-59
XP-214-GRS	Comp B	100	0.18	0.32	0.55	0.05	Negligible	53-M2-21
XP-217-GRS	Comp B	120	0.29	0.78	1.25	0.18	Negligible	53-H1-833
XP-195-GRS	M2	90	0.24	2.35	2.29	0.00	None	52-M2-44
110-DC-Hycar 2202	Comp B	100	0.41	0.29	0.42	0.00	None	56-M2-58
	Tetryl	100	0.41	0.32	0.36	0.00	None	56-M2-58
	TNT	100	0.41	0.08	0.47	0.00	None	56-M2-58
Z-40 Silicone	Comp B	100	0.09	0.29	0.12	0.00	None	56-M2-58
	Tetryl	100	0.09	0.32	0.18	0.00	None	56-M2-58
	TNT	100	0.09	0.08	0.04	0.00	None	
Z2E-Hypalon	Comp B	100	0.33	0.29	0.20	0.00	None	56-M2-58
	Tetryl	100	0.33	0.32	0.51	0.00	None	56-M2-58
	TNT	100	0.33	0.08	0.43	0.02	Negligible	56-M2-58
Z47 Hycar 4021	Comp B	100	0.29	0.29	1.61	1.03	Very slight	56-M2-58
	Tetryl	100	0.29	0.32	1.07	0.46	Negligible	56-M2-58
	TNT	100	0.29	0.08	1.46	1.09	Very slight	56-M2-58
Z46E Adiprene	Comp B	100	0.23	0.29	0.49	0.00	None	56-M2-58
	Tetryl	100	0.23	0.32	1.09	0.54	Negligible	56-M2-58
	TNT	100	0.23	0.08	0.39	0.08	Negligible	56-M2-58

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Rubber Composition I-18FF	Comp B	100	0.15	0.11	0.40	0.14	Negligible	54-H1-775
	Tetryl	100	0.15	0.21	0.75	0.39	Negligible	54-H1-775
	TNT	100	0.15	0.20	0.28	0.00	None	54-H1-775
SFR-172-2 (Firestone)	M-1	100	0.26	0.87	0.84	0.00	None	57-TM2-33
	M-9	100	0.23	5.90	7.15	1.02	Very slight	57-RM2-33
	M-17	100	0.24	2.43	6.49	3.82	Moderate	57-TM2-33
SFR-172-3 (Firestone)	M-1	100	0.24	0.38	0.46	0.00	None	57-TM2-33
	M-9	100	0.30	5.86	7.26	1.10	Very slight	57-TM2-33
	M-17	100	0.24	2.28	11.80	9.28	Excessive	57-TM2-33
SFR-172-1A Firestone	M-1	90	0.32	3.67	0.92	0.00	None	56-H1-573
	M-9	90	0.36	5.90	6.40	0.14	Negligible	56-H1-573
	M-17	90	0.32	6.19	2.08	3.79	Moderate	56-H1-573
Scotchweld No. 585– cured	M-1	100	0.01	1.53	1.27	0.00	None	56-M2-38
uncured	M-1	100	0.27	1.53	1.39	0.00	None	56-M2-38
Sulfur No. 1 Butyl rubber	Comp B	100	0.44	0.28	0.58	0.00	None	52-M2-85
	Lead azide	100	0.55	0.51	0.89	0.00	None	52-M2-85
	M-18	100	0.55	0.37	0.69	0.00	None	52-M2-85
	Tetryl	100	0.44	0.61	1.08	0.03	Negligible	52-M2-85
Sulfur No. 2 Butyl rubber	Comp B	100	0.61	0.28	0.49	0.00	None	52-M2-85
	Lead azide	100	0.61	0.51	0.75	0.00	None	52-M2-85
	M-18	100	0.63	0.37	0.58	0.00	None	52-M2-85
	Tetryl	100	0.63	0.61	0.65	0.00	None	52-M2-85
Pliofilm Rubber hydrochloride film	M-8	90	0.22	2.88	2.59	0.00	None	53-M2-134

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Pliotuf-GP-75 Butadiene/Styrene	M-9	90	0.09	4.91	3.38	0.00	None	54-M2-65
Presstite No. 106 Polysulfide rubber	M-2	90	0.11	2.71	3.63	0.81	Negligible	52-M2-84
	M-7	90	0.27	2.57	3.69	0.85	Negligible	52-M2-171
	M-9	90	0.76	9.82	10.66	0.08	Negligible	52-M2-173
Pro-Seal EP-601 Polysulfide rubber	Comp B	100	0.34	0.25	3.05	2.46	Slight	56-M2-30
Thiokol-LP-2 Polysulfide rubber	Black powder	100	0.45	1.25	0.72	0.00	None	52-M2-149
	Comp A-3	100	013	0.44	0.50	0.00	None	55-M2-57
	M-1	100	0.09	1.84	1.23	0.00	None	55-M2-57
	M-8	90	0.10	3.82	3.73	0.00	None	55-M2-57
	M-9	90	0.07	5.12	3.79	0.00	None	55-M2-57
	Tetryl	100	0.45	0.57	2.50	1.48	Very slight	52-M2-149
	RDX	100	0.07	0.30	0.64	0.27	Negligible	52-M2-29
	TNT	100	0.36	0.32	1.03	0.35	Negligible	52-M2-28
	PETN	100	0.40	0.54	1.04	0.10	Negligible	135156
Thiokol LP-3	Tetryl	100	0.34	0.23	2.43	1.86	Very slight	54-M2-47
Thiokol 1605AH	JPN	90	0.34	2.36	2.66	0.00	None	53-M2-4
	MRP	90	0.34	1.71	2.29	0.24	Negligible	53-M2-4
	T-2	90	0.34	7.22	4.61	0.00	None	53-M2-4
	T-8	90	0.34	2.04	1.26	0.00	None	53-M2-4
Thiokol 1620 AH	JPN	90	0.34	2.36	3.04	0.34	Negligible	53-M2-4
	MRP	90	0.34	1.71	2.52	0.47	Negligible	53-M2-4
	T-2	90	0.34	7.22	5.14	0.00	None	53-M2-4
	T-8	90	0.34	2.04	2.51	0.13	Negligible	53-M2-4
Thiokol 3000 FA	JPN	90	0.21	2.36	3.07	0.50	Negligible	53-M2-4
	MRP	90	0.21	1.71	3.46	1.54	Very slight	53-M2-4
	T-2	90	0.21	7.22	6.11	0.00	None	53-M2-4
	T-8	90	0.21	2.04	2.43	0.18	Negligible	53-M2-4

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Thiokol 3000 PR-I	JPN	90	0.30	2.36	3.06	0.40	Negligible	53-M2-4
	MRP	90	0.30	1.71	1.45	0.00	None	53-M2-4
	T-2	90	0.30	7.22	3.26	0.00	None	53-M2-4
	T-8	90	0.30	2.04	2.72	0.38	Negligible	53-M2-4
Thiokol 3000 ST	JPN	90	0.26	2.36	2.35	0.00	None	53-M2-4
	MRP	90	0.26	1.71	2.64	0.67	Negligible	53-M2-4
	T-2	90	0.26	7.22	6.40	0.00	None	53-M2-4
	T-8	90	0.26	2.04	2.27	0.00	None	53-M2-4
Thiokol 3600 ST	JPN	90	0.24	2.36	2.52	0.00	None	53-M2-4
	MRP	90	0.24	1.71	2.20	0.25	Negligible	53-M2-4
	T-2	90	0.24	7.22	6.12	0.60	None	53-M2-4
	T-8	90	0.24	2.04	2.10	0.00	None	53-M2-4
Tremco Polysulfide Rubber	PBX	100	0.35	0.26	0.75	0.14	Negligible	55-M2-8
	PETN	100	0.32	0.24	0.61	0.05	Negligible	55-M2-8
	Tetryl	100	0.35	0.52	1.93	1.06	Very slight	55-M2-8
Silicone Rubber	OGK	90	0.17	0.91	0.99	0.00	None	54-H1-433
Silastic No. 150 Silicone Rubber	JPN	90	0.33	2.36	2.55	0.00	None	53-M2-4
	MRP	90	0.33	1.78	2.06	0.00	None	53-M2-4
	T-2	90	0.33	7.22	7.29	0.00	None	53-M2-4
	T-8	90	0.33	2.28	2.06	0.00	None	53-M2-4
Silastic No. 180 Silicone Rubber	JPN	90	0.50	2.36	2.76	0.00	None	53-M2-4
	MRP	90	0.50	1.78	1.82	0.00	None	53-M2-4
	T-2	90	0.50	7.22	6.74	0.00	None	53-M2-4
	T-8	90	0.50	2.28	2.34	0.00	None	53-M2-4
Silastic No. D-250 Silicone Rubber	Comp B	100	0.12	0.30	0.19	0.00	None	56-H1-213
	TNT	100	0.12	0.27	0.25	0.00	None	56-H1-213

TABLE 80 (Continued)

Polymeric Material	Explosive	Test Temp, °C	Plastic Control	Explosive Control	Plastic and Explosive	Net Increase* Due to Polymer	Remarks	Picatinny Report No.
Silastic No. 80-24-480 Silicone Rubber	M-1	100	0.06	0.89	0.49	0.00	None	57-TM2-33
	M-9	90	0.14	5.90	5.71	0.00	None	57-TM2-33
	M-17	90	0.06	2.30	2.16	0.00	None	57-TM2-33
Silastic No. 50-24-480 Silicone Rubber	M-1	90	0.06	0.89	0.49	0.00	None	56-H1-574
	M-9	90	0.14	5.90	5.71	0.00	None	56-H1-574
	M-17	90	0.06	2.30	2.16	0.00	None	56-H1-574
Varglas Silicone Tubing	Comp B	100	0.17	0.16	0.20	0.00	None	57-TM2-19
	Pentolite 50/50	100	0.17	2.15	2.02	0.00	None	57-TM2-19
Neoprene	HBX	100	0.14	0.52	2.16	1.50	Very slight	51-8-47

TABLE 81

Compositions of Elastomers, in Parts by Weight

Rubber Composition XP-218	Paracril BJ	100.00
(R[a])	Zinc oxide	5.00
	Stearic acid	2.00
	Neozone D	1.50
	SRF	75.00
	Flexol-3GH	7.50
	Plasticizer SC	7.50
	Thionex	0.60
	Sulfur	1.00
GR-S (XP-142)	GR-S	100.00
(R)	Zinc oxide	5.00
Picatinny Arsenal	Captax	1.5
	Thiuram M	0.2
	Sulfur	2.0
Rock Island Arsenal	GRS-5-630 (80/20)	100.00
No. S-42	Zinc oxide	5.00
(R)	Stearic acid	3.0
Rock Island Arsenal	Rosin D	1.0
	Captax	1.0
	Tetrone A	2.0
	Philblack A (HMF)	60.00
	Thermax	20.00
	Helizone	2.0
	Flexol ToF	5.0
Rubber Composition No. 32S-453	50 pts pliolite and 50 pts	
(R)	GR-S 100, blended by	
Ohio Rubber Company	Goodyear Rubber Co.	46.24
	GR-S-1505 (Arctic rubber)	23.12
	EPC Carbon black	23.12
	Stearic acid	0.46
	Zinc oxide	2.31
	No. 2246 age resistor	0.46
	Idone No. 638½	2.32
	Santocure accelerator	0.58
	Sulfur	1.39

[a]R-rubber; P-plastic; A-adhesive; and S-sealant

TABLE 81 (Continued)

Rubber Composition XP-76	76.5/23.5 Butadiene/ styrene copolymer	100.00
(R)	85/15 Butadiene/ styrene	50.00
Picatinny Arsenal	Carbon black (High abrasion furnace)	70.00
	Tributoxyethyl phosphate	6.0
	Stearic acid	1.5
	Zinc oxide	6.5
	Benzothiazyl disulfide	1.5
	Tetramethyl thiuram	0.4
	Sulfur	2.5
Rubber Composition XP-101	GR-S	100.00
(R)	Stearic acid	1.0
Picatinny Arsenal	Zinc oxide	5.0
	Benzothiazyl disulfide	1.5
	Sulfur	1.5
	Tributoxyethyl phosphate	6.0
	Refined coal tar distillate-Bardol-B	6.0
	Cumar idene resin	5.0
	Tetramethyl thiuram disulfide	0.3
	HAF carbon black	30.0
Rubber Composition XP-195	GR-S	100.0
(R)	Zinc oxide	5.0
Picatinny Arsenal	Stearic acid	2.0
	Altox	1.5
	Sulfur	2.0
	Pliolite S-6	50.0
	Thiuram M	0.1
	KP-140	10.1
	Philblack ''0''	70.0
	Age Rite resin	2.0
Rubber Composition XR-206	GR-S	100.0
(R)	Stearic acid	1.50
Picatinny Arsenal	Altax	1.50
	Zinc oxide	5.0
	Thiuram M	0.30
	Sulfur	1.50

TABLE 81 (Continued)

	Neozone A	1.00
	Philblack "0"	40.00
	Thermax	30.00
	Flexol ToF	10.00
Rubber Composition XP-214 Picatinny Arsenal	GR-S	100.0
	Zinc oxide	5.0
	Stearic acid	1.5
	RC 184 (Durez 13388)	20.0
	EPC	20.0
	HAF	20.0
	Tuads	0.25
	HMF	20.0
	Good Rite Resin .50	20.0
	Flexol ToF	10.0
	Graphite	10.0
	Altax	1.5
	Sulfur	2.0
	Hulizone	2.0
Rubber Composition XP-217 Picatinny Arsenal	GR-S	100.0
	Stearic acid	1.5
	Altax	1.5
	Zinc oxide	5.0
	Thiuram M	0.3
	Sulfur	1.5
	Neozone A	2.0
	Acetylene carbon black	70.0
	Flexol ToF	10.0
	Ceraplite (Plumbago)	10.0
Butyl Rubber 5N-259 (32B-62) Ohio Rubber Company	GR-I 15	100.0
	Zinc oxide	5.0
	Stearic acid	3.0
	Tuads	1.0
	Sulfur	1.5
	MPC	116.0
Dioxime No. 1 Debell & Richardson	Butyl rubber	100.0
	Zinc oxide	5.0
	EPC black	54.0
	Stearic acid	1.0
	Dibenzoyl quinone dioxime	6.0
	Red lead	10.0

TABLE 81 (Continued)

Dioxime No. 2 Debell & Richardson	Butyl rubber	100.0
	Zinc oxide	5.0
	EPC black	54.0
	Stearic acid	1.0
	Quinone dioxime	2.0
	Benzothiazyl disulfide	4.0
GRI (XP-143) (R) Picatinny Arsenal	GR-I	100.0
	Stearic acid	3.0
	Zinc oxide	5.0
	Sulfur	2.0
Cure: 166°C for 20 minutes	Captax	0.5
	Thiuram M	1.0
Rock Island Arsenal No. I 18FE1 (R) Rock Island Arsenal	Butyl GR-I	100.0
	Zinc oxide	5.0
	Stearic acid	1.0
	Methyl tuads	0.5
	Altax	1.0
	Sulfur	1.5
	SRF, Gastex	70.0
	Trioctyl phosphate	15.0
	Dioctyl sebacate	10.0
Sulfur No. 1 DeBell & Richardson	Butyl rubber	100.0
	Zinc oxide	5.0
	EPC black	54.0
	Sulfur	2.0
	Tetramethyl thiuram disulfide	1.0
	Selenium diethyl dithiocarbamate	1.0
	Stearic acid	1.0
Sulfur No. 2 DeBell & Richardson	Butyl rubber	100.0
	Zinc oxide	5.0
	EPC black	54.0
	Sulfur	2.0
	Tetramethyl thiuram disulfide	1.0
	Mercapto benzothiazole	1.0

TABLE 81 (Continued)

GR-M-Neoprene (XP-145)	GR-M	100.0
Picatinny Arsenal	Stearic acid	1.0
	Zinc oxide	5.0
Cure: 166°C for 15 minutes	Magnesium oxide	4.0
GR-M10 (Neoprene)	Neoprene GR-M10	100.0
E. I. duPont deNemours	Lead oxide	20.0
	Toluene	280.
	Accelerator 833	0.75
Rubber Composition XP-202	Neoprene WRT	100.0
Picatinny Arsenal	Thermoflex A	2.0
	Stearic acid	0.50
	Magnesium oxide	4.00
	SRF	50.00
	HAF	40.00
	NA-22	0.55
	Zinc oxide	5.00
	Marbon 8000	10.00
	Baker P-6	5.00
Rubber Composition XP-203	Neoprene W	100.0
Picatinny Arsenal	Neozone A	2.0
	Stearic acid	0.50
	Petrolatum	1.00
	Magnesia	4.00
	Mt carbon black	80.00
	Baker P-6	12.00
	Zinc oxide	5.00
	Na-22	0.50

Section 12

VINYL POLYMERS AND COPOLYMERS

Information regarding the following polymers is included in this section: polyvinyl chloride, polyvinyl acetates, polyvinyl alcohol, polyvinyl acetal, polyvinyl butyral, and polyvinyl formal.

Vinyl polymers in general do not adversely affect the reactivity of explosives and propellants. The effect of the explosives and propellants on the vinyl polymers cannot be summarized in a single statement. Vinyl polymers, especially when plasticized, quite often deteriorate when in direct contact with propellants containing a high percentage of nitroglycerine or other plasticizers. Specific examples are given in the tables which follow.

TABLE 82

Vacuum Stability Test Results for Vinyls

Material	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Alvar Polyvinyl Acetal	Composition C-3	100	0.22	1.20	1.97	0.55	Negligible	53-M2-46
	H-6 Navy Explosive	100	0.22	0.13	0.38	0.03	Negligible	53-M2-46
	MOX	100	0.22	0.18	0.28	0.00	None	53-M2-46
	Tetryl	100	0.22	0.41	0.67	0.04	Negligible	53-M2-46
Ankoseal No. 436 (PVC)	M-7	90	0.09	4.37	2.89	0.00	None	135157
Butvar-B-76 PV Butryal	Cyclotol 75/25	100	0.78	0.31	0.74	0.00	None	55-M2-13
Exon No. 400 XR-61-PVC	Fuze Powder	100	0.58	0.37	0.46	0.00	None	53-M2-7
Exon 402A-PVC	Composition B	100	0.18	0.25	0.25	0.00	None	57-TM2-8
	M-2	90	0.25	0.59	1.93	1.09	Very slight	57-TM2-8
	M-8	90	0.17	4.03	3.63	0.00	None	57-TM2-8
Formvar E (Polyvinyl formal)	JPN	90	0.14	2.36	2.30	0.00	None	53-M2-4
	MRP	90	0.14	1.71	1.77	0.00	None	53-M2-4
	T-2	90	0.14	7.22	6.67	0.00	None	53-M2-4
	T-8	90	0.14	2.04	2.10	0.00	None	53-M2-4
Geon No. 404 PVC	JPN	90	0.15	2.36	2.17	0.00	None	53-M2-4
	MRP	90	0.15	1.78	1.58	0.00	None	53-M2-4
	M-2	90	0.15			0.00	None	52-H1-874
	T-2	90	0.15	7.22	7.06	0.00	None	53-M2-4
	T-8	90	0.15	2.28	2.05	0.00	None	
Geon No. 1911 PVC	Black powder					11.00	Excessive	53-H1-2757
	Haleite					1.05	Very slight	53-H1-2757

TABLE 82 (Cont)

Material	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Geon No. 1911 PVC	M-1					0.18	Negligible	53-H1-2757
	M-2					4.78	Moderate	53-H1-2757
	PETN					0.26	Negligible	53-H1-2757
	RDX					0.27	Negligible	53-H1-2757
	T-9					1.68	Very slight	53-H1-2757
Geon No. 2046 PVC	Haleite					0.20	Negligible	53-H1-2757
	M-1					3.81	Moderate	53-H1-2757
	M-2					1.10	Very slight	53-H1-2757
	PETN					0.27	Negligible	53-H1-2757
	RDX					0.23	Negligible	53-H1-2757
	T-9					2.29	Slight	53-H1-2757
Geon No. 8700 PVC	Composition B	100	0.13	0.25	0.49	0.11	Negligible	57-TM2-8
	M-2	90	0.15	0.59	1.13	0.39	Negligible	57-TM2-8
	M-8	90	0.08	4.03	4.66	0.55	Negligible	57-TM2-8
Luring Cmpd-12128A	T-6	90	0.64	6.08	6.71	0.00	None	52-M2-93
Polyvinyl Alcohol A	JPN	90	0.19	2.36	3.75	1.20	Very slight	53-M2-4
	MRP	90	0.19	1.71	2.90	0.00	None	53-M2-4
	T-2	90	0.14	3.54	4.10	0.42	Negligible	53-M2-4
	T-8	90	0.19	2.04	2.95	0.72	Negligible	53-M2-4
Polyvinyl Alcohol B	JPN	90	0.20	2.36	2.45	0.00	None	53-M2-4
	MRP	90	0.20	1.71	2.40	0.49	Negligible	53-M2-4
	T-2	90	0.20	7.22	6.43	0.00	None	53-M2-4
	T-8	90	0.20	2.04	2.25	0.01	Negligible	53-M2-4
Polyvinyl chloride tubes	T-6	90	0.08	3.04	3.66	0.54	Negligible	53-M2-61

TABLE 82 (Cont)

Material	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Marvinal Metal Laminate	RDX	100	0.10	0.35	0.23	0.00	None	55-H1-1828
	Tetryl	100	0.10	0.29	0.36	0.00	None	55-H1-1828
VA-1310	T-2	90	0.42	6.47	4.92	0.00	None	51-8-6
PVC-Acetate	Type O-Prop	90	0.42	2.04	1.57	0.00	None	51-8-6
Prufcoat	Composition C-4	100	0.19	0.27	0.19	0.00	None	56-M2-50
	RDX	100	0.19	0.48	0.23	0.00	None	56-M2-50
Temflex No. 105	Smoke Composition	100	0.11	0.32	0.11	0.00	None	54-M2-64
VGNA-Vinylite No. 59679	Black powder	100	0.05	0.47	0.44	0.00	None	54-M2-7
Vinylite Blend 351	PBX	100	0.91	0.18	0.35	0.00	None	56-M2-29
PA 30786 VA	PETN	100	0.99	0.62	1.66	0.00	None	56-M2-29
	Tetryl	100	0.91	0.50	1.24	0.00	None	56-M2-29
VAGH-Vinyl-Acrylic	T-6	90	0.51	2.80	2.63	0.00	None	52-M2-4
	Tetryl	100	0.49	0.44	0.82	0.00	None	51-8-5
	M-7	90	0.72	2.45	1.98	0.00	None	52-M2-150
Vinyl butyral	Amatol	100	0.28	0.41	2.01	1.32	Very slight	56-M2-12
MF-891	M-7	90	0.69	2.13	1.96	0.00	None	56-M2-12
	M-15	90	0.69	1.98	2.31	0.00	None	56-M2-12
	Tetryl	100	0.28	0.45	0.73	0.00	None	56-M2-12
Vinyl Chloride Acetate	Amatol	100	1.48	0.41	4.55	2.66	Slight	56-M2-12
MF-871	M-7	90	1.29	2.13	1.86	0.00	None	56-M2-12
	M-15	90	1.29	1.98	1.93	0.00	None	56-M2-12
	Tetryl	100	1.48	0.45	1.25	0.00	None	56-M2-12

TABLE 82 (Cont)

Material	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Vinyl Chloride Acetate MF-872	Amatol	100	0.73	0.41	2.29	1.15	Very slight	56-M2-12
	M-7	90	0.72	2.13	2.08	0.00	None	56-M2-12
	M-15	90	0.72	1.98	2.61	0.00	None	56-M2-12
	Tetryl	100	0.73	0.45	0.59	0.00	None	56-M2-12
Vinylite MA-28-4	Black powder					0.00	None	51-H1-2424
	Tetryl					0.00	None	51-H1-2424
	TNT					0.00	None	51-H1-2424
VGGB Vinylite 19409	Blackpowder	100	0.10	0.43	0.59	0.06	None	53-H1-874
Coverlac No. SC-232 PVC orange	RDX	100	0.19	0.02	0.18	0.00	None	57-TM2-35
	TNT	100	0.19	0.07	0.28	0.06	Negligible	57-TM2-35
	Tetryl	100	0.19	0.22	0.39	0.00	None	57-TM2-35
PV-845	Composition B	100	0.02	0.28	0.13	0.00	None	57-TM2-9
	RDX	100	0.02	0.32	0.11	0.00	None	57-TM2-9
	Tetryl	100	0.02	0.48	0.61	0.11	Negligible	57-TM2-9
	TNT	100	0.02	0.34	0.19	0.00	None	57-TM2-9
Elvanol 70-05 powdered polyvinyl alcohol	Composition C-3	100	0.08	1.47	3.93	2.38	Slight	55-M2-21
Elvanol 70-05 (film,	Composition C-3	100	0.22	1.47	6.16	4.47	Moderate	55-M2-21
Flexseal No. 258 polyvinyl butyral	Composition B	100	0.45	0.39	0.70	0.00	None	51-8-16
	TNT	100	0.45	0.32	0.58	0.00	None	51-8-16
Permacel No. 30 (film)	Amatol	100	0.00	0.29	6.12	5.83	Excessive	56-M2-13
	TNT	100	0.00	0.00	0.14	0.14	Negligible	56-M2-13
	Tritonal	100	0.00	0.17	0.15	0.00	None	56-M2-13

TABLE 82 (Cont)

Material	Explosive	Temperature, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Tub-Kore	Composition B	100	0.35	0.29	0.47	0.00	None	53-M2-86
	Tetryl	100	0.35	0.33	1.09	0.41	Negligible	53-M2-86
	TNT	100	0.35	0.32	0.38	0.00	None	53-M2-86
Wash Primer X2676B Spec 15328	Black powder	100	0.43	0.75	1.33	0.15	Negligible	57-TM2-5
	M-1	100	0.43	2.06	2.16	0.00	None	57-TM2-5
	M-16	90	0.43	5.85	5.61	0.00	None	57-TM2-5
	M-17	90	0.43	2.39	2.78	0.00	None	57-TM2-5

TABLE 83

Appearance of Vinyls After Storage

Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Specimen	Picatinny Report No.
Exon-400 XR-61	Fuze Powder	8	76	No change	53-M2-7
Exon-4002	Composition B	52	71	Surface becomes slightly coated	57-TM2-8
	M-2	52	50	No change	57-TM2-8
	M-8	52	50	No change	57-TM2-8
Formvar E	JPN	26	50	No report	53-M2-4
	MRP	24	50	Slightly softens	53-M2-4
	T-2	24	50	Slightly softens	53-M2-4
	T-8	24	50	Slightly softens	53-M2-4
Geon No. 404	JPN	26	50	No change	53-M2-4
	MRP	26	50	No change	53-M2-4
	T-2	26	50	No change	53-M2-4
	T-8	26	50	No change	53-M2-4
Geon No. 8700 PVC/acrylonitrile	Composition B	52	71	Becomes slightly swollen	57-TM2-8
	M-2	52	50	Turns green	57-TM2-8
	M-8	52	50	Becomes slightly swollen	57-TM2-8
Polyvinyl Alcohol A	JPN	26	50	No report	53-M2-4
	MRP	24	50	No change	53-M2-4
	T-2	24	50	Slightly hardens	53-M2-4
	T-8	24	50	No change	53-M2-4
Polyvinyl Alcohol B	JPN	26	50	Becomes stiffer	53-M2-4
	MRP	24	50	No change	53-M2-4
	T-2	24	50	Becomes brittle	53-M2-4
	T-8	24	50	Becomes brittle	53-M2-4

TABLE 83 (Cont)

Material	Explosive	Storage, weeks	Temperature, °C	Appearance of Specimen	Picatinny Report No.
VU-1310	T-2	15	50	Yellow, softened, elastomeric	51-8-6
	Type O-Prop	15	50	Yellow, softened, elastomeric	51-8-6
Prufcoat	Composition C-4	24	76	No change	56-M2-50
	RDX	24	76	No change	56-M2-50
Vinylite Blend 351 PA 30786VA	PBX	52	76	Explosive adheres	56-M2-29
	PETN	52	76	Some adherence	56-M2-29
	Tetryl	52	76	Explosive adheres	56-M2-29
VAGH-Vinyl-Acrylic	T-6	10	50	Softens, loses adhesion	52-M2-4
	Tetryl	6	76	Toughens	51-8-5
	M-7	9	50	Softens, loses adhesion	52-M2-150
Coverlac No. SC-232	RDX	24	76	Some adhesion	57-TM2-35
	Tetryl	24	76	Some adhesion	57-TM2-35
	TNT	24	76	Darkens, some adhesion	57-TM2-35
PV-845	Composition B	24	71	Becomes brittle	57-TM2-9
	RDX	24	76	Becomes a bit brittle	57-TM2-9
	Tetryl	24	76	Loses some flexibility	57-TM2-9
	TNT	24	71	Becomes brown and dry	57-TM2-9
Wash Primer Spec 15328	M-1	32	76	No change	57-TM2-5

TABLE 84

Percent Change in Weight of Vinyl Polymers After Storage

Material	Explosive	Storage, weeks	Temperature, °C	% Change, Control	% Change, Contact	Picatinny Report No.
Ankoseal No. 436	M-7	52	50	− 0.30	−12.00	135157
Exon-402A	Composition B	52	71	+ 0.30	+11.8	57-TM2-8
	M-2	52	50	+ 0.02	− 0.63	57-TM2-8
	M-8	52	50	+ 0.02	+ 1.90	57-TM2-8
Formvar E	JPN	26	50	− 1.93	+29.70	53-M2-4
	MRP	24	50	− 1.93	+12.50	53-M2-4
	T-2	24	50	− 1.93	+12.10	53-M2-4
	T-8	24	50	− 1.93	+ 7.95	53-M2-4
Geon No. 404	JPN	26	50	− 0.03	+ 0.78	53-M2-4
	MRP	26	50	− 0.03	+ 1.41	53-M2-4
	T-2	26	50	− 0.03	+ 0.75	53-M2-4
	T-8	26	50	− 0.03	+ 0.44	53-M2-4
Geon No. 8700 PVC/Acrylonitrile	Composition B	48	71	+ 0.30	+18.2	57-TM2-8
	M-2	48	50	+ 0.11	+ 0.28	57-TM2-8
	M-8	48	50	+ 0.11	+18.1	57-TM2-8
Luting Cmpd No. 12128A	T-6	See reproduced report at end of section				53-M2-11
Polyvinyl Alcohol A	JPN	26	50	− 3.68	− 1.83	53-M2-4
	MRP	24	50	− 3.68	− 4.79	53-M2-4
	T-2	24	50	− 3.68	− 3.32	53-M2-4
	T-8	24	50	− 3.68	− 4.53	53-M2-4

TABLE 84 (Cont)

Material	Explosive	Storage, weeks	Temperature, °C	% Change, Control	% Change, Contact	Picatinny Report No.
Polyvinyl Alcohol B	JPN	26	50	−12.30	+12.40	53-M2-4
	MRP	24	50	−12.30	−13.50	53-M2-4
	T-2	24	50	−12.30	−13.60	53-M2-4
	T-8	24	50	−12.30	−12.90	53-M2-4
Polyvinyl chloride tube	T-6	8	50	− 0.08	+10.6	53-M2-61
VU-1310 PVC-Acetate	T-2	15	50	0.00	+45.1	51-8-6
	Type O	15	50	0.00	+61.4	51-8-6
Prufcoat	Composition C-4	24	76	− 4.21	− 1.06	56-M2-50
	RDX	24	76	− 4.21	− 5.28	56-M2-50
VGNA-Vinylite No. 59679	Black powder	16	76	+ 0.67	+ 0.62	54-M2-7
Vinylite Blend 351 PA-30786	PBX	52	76	−	−	56-M2-29
	PETN	52	76		− 9.82	56-M2-29
	Tetryl	52	76		−	56-M2-29

TABLE 85

100°C Heat Test Results for Vinyls

Polymer and Weight in Grams	Explosive and Weight in Grams	Loss of Weight 1st 48 Hrs. Gm	1st 48 Hrs. %	2nd 48 Hrs. Gm	2nd 48 Hrs. %	Explosion at 100 Hours	Picatinny Report No.
Fortran 404	Lead Azide						
0.6	0.6	0.0081	0.63	0.0012	0.10	None	54-M2-67
0.6	—	0.0018	0.30	0.0010	0.17	None	54-M2-67
—	0.6	0.0051	0.85	0.0003	0.05	None	54-M2-67
	Mercury Fulminate						
0.6	0.6	0.0598	4.98	0.0047	0.39	None	54-M2-67
0.6	—	0.0018	0.30	0.0010	0.17	None	54-M2-67
—	0.6	0.0588	9.80	0.0012	0.20	None	54-M2-67
Marvinal Metal Laminate	Lead Azide						
0.6	0.6	0.0071	0.59	0.0012	0.10	None	55-H1-1828
0.6	—	0.0010	0.17	0.0000	0.00	None	55-H1-1828
—	0.6	0.0062	1.03	0.0003	0.05	None	55-H1-1828
	Nol 130 Primer Mix						
0.6	0.6	0.0141	1.18	0.0010	0.09	None	55-M2-1828
0.6	—	0.0010	0.17	0.0000	0.00	None	55-M2-1828
—	0.6	0.0119	1.98	0.0010	0.17	None	55-M2-1828
	Primer Mix PA-100						
0.6	0.6	0.0013	0.11	0.0006	0.05	None	55-M2-1828
0.6	—	0.0010	0.17	0.0000	0.00	None	55-M2-1828
—	0.6	0.0009	0.15	0.0000	0.00	None	55-M2-1828

TABLE 85 (Cont)

Polymer and Weight in Grams	Explosive and Weight in Grams	Loss in Weight 1st 48 Hrs. Gm	%	2nd 48 Hrs. Gm	%	Explosion r 100 Hours	Picatinny Report No.
Marvinal Metal Laminate	Standard Primer Mix						
0.6	0.6	0.0023	0.19	0.0009	0.08	None	55-M2-1828
0.6	—	0.0010	0.17	0.0000	0.00		
—	0.6	0.0017	0.28	0.0000	0.00		
Temflex No. 105	Charge Det. No. 260						
0.6	0.6	0.0015	0.13	0.0000	0.00	None	54-M2-64
0.6	—	0.0016	0.21	0.0000	0.00	None	54-M2-64
—	0.6	0.0002	0.03	0.0000	0.00	None	54-M2-64

TABLE 86

Effect of Explosives on Exon 402[a]

	Max. Tensile, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, %	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work to Yield, ft-lbs	σ	Work to Produce Failure, psi	σ	Impact Strength, ft-lbs[c]	σ
Room Control	9,720	67	7330	291	3.19	0.12	8.48	3.2	452×10^3	46,262	16.8	1.5	49.0	17.9	0.56	0.03
30°C Control[b]	10,600		6760		2.98		3.40		560×10^3				18.9		0.55	0.01
with OGK	10,200	154	6400	230	3.12		3.28	0.18	457×10^3	5,176			17.9	1.3	0.55	0.00
with OIO	10,300	116	6400	472	3.15		3.25	0.10	499×10^3	18,961			18.5	1.2	0.56	0.02
with M2[b]	10,500		5780		3.26				466×10^3		18.0				0.51	0.09
with M7	10,600	101	6650	253	3.01		3.12	0.28	493×10^3	7,274			17.4	2.2	0.57	0.07
with M8[b]	9,720		5120		3.08		7.29		470×10^3		15.6				0.54	0.06
with M9	10,600	123	6650	200	3.14		3.28	0.28	471×10^3	10,634			18.7	1.8	0.52	0.08
with M15	10,300	122	6630	308	3.09		3.18	0.14	473×10^3	15,516			17.7	1.3	0.57	0.07
with T16	10,700	119	6670	115	3.16		3.28	0.12	476×10^3	4,319			18.7	0.9	0.55	0.03
with T18	10,900	164	6610	272	3.05		3.22	0.16	481×10^3	7,055			18.0	1.4	0.54	0.05
with T19	10,500	119	6630	156	3.05		3.14	0.15	481×10^3	6,967			17.5	1.2	0.54	0.02

[a] All specimens stored 12 months at 50°C

[b] 5 specimens

[c] All impact specimens looked clean

TABLE 87

Effect of Explosives on Geon 8700

	Ult. Tensile, psi	σ	Yield Strength, psi	σ	Prop. Limit, psi	σ	Elong. at Yield, %	σ	Elong. at Break, %	σ	Modulus, psi	σ	Work at Yield, psi	σ	Work to Produce Failure, psi	σ	Impact Strength, ft lbs	σ
Room Control	6890	171	6890	75	3030	321	3.39	0.19	127	2 spec	382×10^3	9,180	25.1	3.9	597	2 spec	1.10	0.20
50°C Control	7560	218	7560	218	5260	190	3.15	0.21	24.9	8.9	403×10^3	30,515	14.1	1.9	124	45	1.12	0.58
with OGK	6580	229	6200	109	3620		3.29	0.29	199	13	481×10^3		13.6	2.3	716	71	0.90	0.56
with OBO	6330	306	6020	224	4140		3.27	0.15	138	9	345×10^3		13.4	1.1	706	43	0.65	0.15
with M2	7530	184	7530	184	5410	155	3.18	0.18	39.6	5.7	422×10^3	2,447	16.0	3.2	194	28	0.55	0.05
with M7	6390	266	6390	256	3450		3.09	0.28	144	11	405×10^3		13.4	1.6	645	61	0.92	0.40
with M8	5580	132	5060	174	3310	126	3.47	0.23	146	5	322×10^3	14,115	11.8	2.0	569	39	0.53	0.14
with M9	5080	283	5380	310	3120		3.13	0.14	154	11	378×10^3		11.7	1.3	625	33	1.08	0.41
with M15	6210	270	5950	363	5220		3.25	0.46	146	11.0	379×10^3		12.4	2.2	636	55	0.62	0.04
with T16	6910	265	6630	265	4480		3.28	0.24	144	13.0	443×10^3		13.8	1.8	682	43	0.70	0.10
with T18	7420	98	7390	130	3970		2.91	0.68	85.1	50.0	443×10^3		14.5	3.4	530	179	0.72	0.11
with T19	6630	171	6270	263	5160		3.20	0.44	159	15.8	492×10^3		13.4	2.1	723	59	0.99	0.05

NOTE: 12 months storage for all specimens in the explosive program unless otherwise notified.

TABLE 83

Effect of Storage in Contact with Propellants and Explosives on Tensile Properties* of Exon 402A and Geon 8700

Storage Temp, °F	In Contact With	Property**	Time of Exposure in Months 0	3	6	9	12
Exon 402A							
Room	Air	T	9300	9,300	9,400	9,700	9,600
		E	3.0	3.0	3.3	3.5	3.7
		M	494,000	521,000	519,000	525,000	505,000
122	Air	T	9,300	10,200	10,300	10,900	10,500
		E	3.0	3.0	3.2	3.7	3.1
		M	494,000	536,000	502,000	519,000	508,000
160	Air	T	9,300	10,300	10,400	10,900	10,300
		E	3.0	3.6	3.6	4.0	4.1
		M	494,000	529,000	537,000	506,000	500,000
122	M-2 propellant	T	9,300	10,200	10,300	10,700	10,200
		E	3.0	3.0	3.0	3.2	3.1 -
		M	494,000	519,000	475,000	515,000	501,000
122	M-8 propellant	T	9,300	9,900	9,700	10,000	9,300
		E	3.0	3.1	3.1	3.4	3.1
		M	494,000	503,000	480,000	502,000	451,000
160	Composition B Explosive	T	9,300	9,500	10,300	10,700	10,300
		E	3.0	3.0	3.3	3.5	3.5
		M	494,000	518,000	521,000	519,000	521,000

*Properties determined at 73.5°F, 50% RH, regardless of storage temperature

**T=yield strength, psi, E=elongation at yield, %, M=modulus, psi

TABLE 88 (Cont)

Storage Temp, °F	In Contact With	Property	Time of Exposure in Months 0	3	6	9	12
Geon 8700							
Room	Air	T	7,300	7,000	7,000	7,300	7,000
		E	4.6	4.1	4.2	3.9	4.6
		M	415,000	373,000	397,000	372,000	355,000
122	Air	T	7,300	7,300	7,400	7,800	7,700
		E	4.6	3.6	3.5	3.7	3.3
		M	415,000	410,000	395,000	386,000	380,000
160	Air	T	7,300	7,700	8,000	8,300	8,300
		E	4.6	3.5	3.5	3.7	3.8
		M	415,000	395,000	390,000	393,000	394,000
122	M-2 propellant	T	7,300	7,300	7,400	7,800	7,500
		E	4.6	3.4	3.5	3.7	3.6
		M	415,000	398,000	398,000	396,000	353,000
122	M-8 propellant	T	7,300	5,300	4,700	5,000	4,800
		E	4.6	4.5	4.5	5.7	6.7
		M	415,000	316,000	255,000	243,000	219,000
160	Composition B Explosive	T	7,300	7,200	7,400	7,800	7,500
		E	4.6	3.5	4.0	3.9	3.7
		M	415,000	353,000	357,000	390,000	366,000

Reference: Technical Report 2382
Properties of Rigid Polyvinyl Chloride
Henry A. Tisch
January 1957 - Samuel Feltman Ammunition Laboratories
Picatinny Arsenal - Dover, N.J.

Section 13

Miscellaneous Resins

The materials covered by this section are classed as miscellaneous because, for one reason or another, they cannot be classified under any more specific headings. In most cases, their specific compositions and structures are unknown.

TABLE 89

Vacuum Stability Test Results for Miscellaneous Resins

Material	Explosive	Temp, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Acid Proof Black Paint Type I-Spec. Jan-P-450	Comp A-3	100	0.47	0.39	0.55	0.00	None	56-M2-27
	Comp B	100	0.43	0.20	1.82	1.19	Very slight	56-M2-27
	Comp C-4	100	0.32	0.08	1.13	0.73	Negligible	51-8-26
	RDX	100	0.47	0.39	0.76	0.00	None	56-M2-27
	Tetryl	100	0.34	0.28	2.25	1.63	Very slight	53-M2-89
	TNT	100	0.47	0.09	0.58	0.02	Negligible	56-M2-27
Acoustic Cement	Comp A	100	0.70	0.37	0.60	0.00	None	52-M2-110
	Comp B	100	0.70	0.36	0.72	0.00	None	52-M2-110
	Comp C-3	100	0.70	1.25	3.81	1.86	Very slight	52-M2-110
	Comp C-4	100	0.70	0.29	0.69	0.00	None	52-M2-110
	PETN	100	1.12	0.46	1.60	0.02	Negligible	52-M2-110
	Pentolite 50/50	100	0.70	2.11	2.06	0.00	None	52-M2-110
	RDX	100	0.70	0.30	0.47	0.00	None	52-M2-110
	Tetrytol 75-25	100	0.70	4.30	7.22	2.22	Slight	52-M2-110
	TNT	100	0.70	0.21	0.37	0.00	None	52-M2-110
Armstrong J-1140E (Cumar C-6)	Comp A	100	0.52	0.37	0.44	0.00	None	52-M2-110
	Comp B	100	0.52	0.36	0.65	0.00	None	52-M2-110
	Comp C-3	100	0.52	1.25	1.89	0.12	Negligible	52-M2-110
	Comp C-4	100	0.52	0.29	0.83	0.02	Negligible	52-M2-110
	PETN	100	1.28	0.46	1.30	0.00	None	52-M2-110
	Pentolite 50/50	100	0.52	2.11	1.48	0.00	None	52-M2-110
	RDX	100	0.52	0.30	0.39	0.00	None	52-M2-110
	Tetrytol 75/25	100	0.52	4.30	6.85	2.03	Slight	52-M2-110
	TNT	100	0.52	0.21	0.40	0.00	None	52-M2-110
Armstrong J-1162	Tetryl	100	0.23	0.47	0.87	0.17	Negligible	53-M2-69

TABLE 89 (Continued)

Material	Explosive	Temp, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Asphalt/Asbestos	T-28	90	0.16	5.27	11+	5.57	Excessive	56-HI-1402
Bartalon	Black powder	100	0.20	0.44	0.47	0.00	None	56-M2-26
	Tetryl	100	0.20	0.26	1.00	0.54	Negligible	56-M2-26
	TNT	100	0.20	0.05	0.49	0.24	Negligible	56-M2-26
Casco Flexible Cement	Comp A	100	0.30	0.37	0.23	0.00	None	52-M2-110
	Comp B	100	0.30	0.36	0.29	0.00	None	52-M2-110
	Comp C-3	100	0.30	1.25	1.66	0.11	Negligible	52-M2-110
	Comp C-4	100	0.30	0.29	0.16	0.00	None	52-M2-110
	PETN	100	1.14	0.46	1.16	0.00	None	52-M2-110
	Pentolite 50/50	100	0.30	2.11	1.20	0.00	None	52-M2-110
	RDX	100	0.30	0.30	0.25	0.00	None	52-M2-110
	Tetrytol 75/25	100	0.30	4.30	7.79	3.39	Moderate	52-M2-110
	TNT	100	0.30	0.21	0.23	0.00	None	52-M2-110
Cement No. 4678	HMX	100	1.31	1.03	0.20	0.00	None	57-HI-583
	PBX	100	0.20	0.20	0.27	0.00	None	57-HI-583
Chlorinated Paraffin MF-877	Amatol	100	0.39	0.41	1.06	0.26	Negligible	56-M2-12
	M-7	90	0.64	2.13	2.21	0.00	None	56-M2-12
	M-15	90	0.64	1.98	2.00	0.00	None	56-M2-12
	Tetryl	100	0.39	0.45	0.70	0.00	None	56-M2-12
Clevelon	Black powder	100	0.22	0.44	0.50	0.00	None	56-M2-26
	Tetryl	100	0.22	0.26	0.58	0.10	Negligible	56-M2-26
	TNT	100	0.22	0.05	0.39	0.12	Negligible	56-M2-26
Conducto plast	T-6	90	0.28	2.47	3.41	0.66	Negligible	51-8-36
	T-6	90	0.51	4.79	11+	5.70	Excessive	53-M2-80

TABLE 89 (Continued)

Material	Explosive	Temp, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Coumarone-Indene MF-874	Amatol	100	0.57	0.41	11+	10.02+	Excessive	56-M2-12
	M-7	90	0.37	2.31	2.13	0.00	None	56-M2-12
	M-15	90	0.37	1.98	2.16	0.00	None	56-M2-12
	Tetryl	100	0.57	0.45	0.87	0.00	None	56-M2-12
Eronel Grease No. 900	Comp B	100	0.10	0.43	0.32	0.00	None	56-M2-22
Glidden Cushioning Material	Comp B	100	0.00	0.31	0.32	0.01	Negligible	56-M2-36
	Picratol	100	0.00	0.33	0.22	0.00	None	56-M2-36
	Tetryl	100	0.00	0.38	0.42	0.04	Negligible	56-M2-36
	TNT	100	0.00	0.39	0.00	0.00	None	56-M2-36
	Tritonal	100	0.00	0.37	0.36	0.00	None	56-M2-36
Glidden Inert Sealer No. 587	Comp B	100	0.16	—	—	—	None	56-M2-52
	Picratol	100	0.16	0.30	0.32	0.00	None	56-M2-52
	TNT	100	0.16	0.06	0.19	0.00	None	56-M2-52
	Tritonal	100	0.16	0.06	0.16	0.00	None	56-M2-52
Glidden Inert Sealer No. 589	Comp B	100	0.38	0.35	0.33	0.00	None	56-M2-52
	Picratol	100	0.41	0.06	0.25	0.00	None	56-M2-52
	TNT	100	0.41	0.30	0.35	0.00	None	56-M2-52
	Tritonal	100	0.41	0.06	0.19	0.00	None	56-M2-52
Glidden Inert Sealer No. 590	Comp B	100	0.46	0.35	0.42	0.00	None	56-M2-52
	Picratol	100	0.34	0.30	0.32	0.00	None	56-M2-52
	TNT	100	0.34	0.06	0.28	0.00	None	56-M2-52
	Tritonal	100	0.34	0.06	0.26	0.00	None	56-M2-52
Glidden Inert Sealer No. 591	Comp B	100	0.58	0.35	0.37	0.00	None	56-M2-52
	Picratol	100	0.40	0.30	0.36	0.00	None	56-M2-52
	TNT	100	0.40	0.06	0.22	0.00	None	56-M2-52
	Tritonal	100	0.40	0.06	0.21	0.00	None	56-M2-52

TABLE 89 (Continued)

Material	Explosive	Temp, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Glidden Inert Sealer No. 592	Comp B	100	0.45	0.35	0.33	0.00	None	56-M2-52
	Picratol	100	0.41	0.30	0.34	0.00	None	56-M2-52
	TNT	100	0.41	0.06	0.17	0.00	None	56-M2-52
	Tritonal	100	0.41	0.06	0.23	0.00	None	56-M2-52
Glidden Inert Sealer No. 598	Comp B	100	0.69	0.35	0.60	0.00	None	56-M2-52
	Picratol	100	0.36	0.30	0.38	0.00	None	56-M2-52
	TNT	100	0.36	0.06	0.15	0.00	None	56-M2-52
	Tritonal	100	0.36	0.06	0.33	0.00	None	56-M2-52
Glidden Inert Sealer No. 600	Comp B	100	0.31	0.35	0.37	0.00	None	56-M2-52
	Picratol	100	0.37	0.36	0.36	0.00	None	56-M2-52
	TNT	100	0.37	0.06	0.18	0.00	None	56-M2-52
	Tritonal	100	0.37	0.06	0.13	0.00	None	56-M2-52
Insulating Cmpd 150-DS-88	OIO	90	0.29	0.66	5.61	4.66	Moderate	53-M2-45
Insulating Cmpd Dried at 93°C 2 hrs	OIO	90	0.26	1.04	4.85	3.55	Moderate	53-M2-45
Johnsons Wax No. W-5015	Comp B	100	0.09	0.24	0.50	0.17	Negligible	53-M2-71
Johnsons Wax No. W-5016	Comp B	100	0.00	0.24	0.31	0.07	Negligible	53-M2-71
Johnsons Wax No. W-6118	Comp B	100	0.19	0.24	0.32	0.00	None	53-M2-71
Lining Compound PA-PD-128	Comp B	100	0.29	0.35	1.12	0.48	Negligible	52-M2-17
Masters Metallic Cmpd	RDX	100	0.21	0.43	11+	10.36+	Excessive	52-M2-154
	Tetryl	100	0.21	0.45	11+	10.34+	Excessive	52-M2-154
Metal Sealing Cmpd 1380 red	T-6	90	1.62	2.80	2.97	0.00	None	52-M2-4

TABLE 89 (Continued)

Material	Explosive	Temp °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Norfolk Varnish	Black powder	100	0.86	0.39	1.85	0.60	Negligible	52-M2-16
	M-7	90	0.98	2.54	3.52	0.00	None	52-M2-16
Okun's Cold Solder	Black powder	100	0.29	0.57	0.57	0.00	None	55-M2-10
Orox V	M-9	90	0.22	9.74	0.60	0.00	None	52-M2-133
Permatex No. 2 (Gasket Sealant)	Comp B	100	0.18	0.37	11+	10.45+	Excessive	55-M2-18
	OGK	90	0.45	0.78	2.17	0.94	Negligible	52-M2-43
	T-2	90	0.45	6.24	4.83	0.00	None	52-M2-43
	T-6	90	0.45	4.91	5.03	0.00	None	52-M2-43
	T-8	90	0.45	1.83	1.96	0.00	None	52-M2-43
	T-9	100	0.45	0.37	0.19	0.00	None	52-M2-43
	TNT	100	0.18	0.20	11+	10.62+	Excessive	55-M2-18
	Tritonal 80/20	100	0.18	0.12	11+	10.70+	Excessive	55-M2-18
Pre/Set Plasmount No. 2	Comp B	100	0.76	0.35	0.98	0.00	None	52-M2-47
	Tetryl	100	0.76	0.26	0.89	0.00	None	52-M2-47
	TNT	100	0.76	0.26	0.88	0.00	None	52-M2-47
Royal Cement	T-6	90	0.49	2.47	3.32	0.36	Negligible	51-8-36
	Tetryl	100	—	—	—	0.00	None	51-HI-1573
Shellac/Bronze	T-6	90	0.72	2.64	11+	7.64+	Excessive	51-8-36
Silica Gel	T-16	90	0.05	0.99	3.80	2.76	Slight	53-HI-1350
Titanox TG	Comp C-3	100	0.17	1.20	1.39	0.02	Negligible	53-M2-46
	Navy Explosive H-6	100	0.17	0.13	0.23	0.00	None	53-M2-46
	MOX 2-B	100	0.17	0.18	0.21	0.00	None	53-M2-46
	Tetryl	100	0.17	0.41	0.43	0.00	None	53-M2-46

TABLE 89 (Continued)

Material	Explosive	Temp °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Turbotherm No. 105	Comp B	100	0.00	0.24	0.26	0.00	None	52-M2-27
Tygofilm No. TR-216 Blue	Comp C-4	100	0.17	0.37	0.36	0.00	None	56-M2-48
Valpon No. 182-C7 (Enamel)	Comp C-4	100	0.43	0.37	1.30	0.50	Negligible	56-M2-48
XA-47 Resin	Comp A-3	100	0.00	0.41	0.52	0.11	Negligible	53-M2-76
	Cyclotol 15/25	100	0.00	0.31	3.08	2.77	Slight	53-M2-76
	RDX-Stearic acid	100	0.00	0.35	6.74	6.39	Excessive	53-M2-76
Zamak V (98% zinc)	Tetryl	100	0.11	0.36	0.36	0.00	None	52-M2-130
Zorlock No. 965	Black powder	100	1.39	0.66	0.84	0.00	None	54-M2-55
	Comp B	100	1.39	0.29	0.69	0.00	None	54-M2-55
	M-9	90	1.08	5.19	4.49	0.00	None	54-M2-55
	Tetryl	100	1.39	0.29	1.08	0.00	None	54-M2-55
Zinc Chromate Primer Jan P-735	Comp B	—	—	—	—	—	—	
	M-7	90	0.58	1.89	2.17	0.00	None	54-M2-27
	OGK	90	0.58	1.10	1.81	0.13	Negligible	54-M2-27
	T-6	90	0.58	4.56	5.08	0.00	None	54-M2-27
	T-16	90	0.58	2.90	3.47	0.00	None	54-M2-27
	T-19	90	0.58	3.19	4.13	0.36	Negligible	54-M2-27
Zinc Chromate Primer Mil-P-6889 with Reducer No. 213	M-7	90	0.64	1.89	1.82	0.00	None	54-M2-27
	OGK	90	0.64	1.10	2.09	0.35	Negligible	54-M2-27
	T-6	90	0.64	4.56	5.09	0.00	None	54-M2-27
	T-16	90	0.64	2.90	4.25	0.71	Negligible	54-M2-27
	T-19	90	0.64	3.19	3.44	0.00	None	54-M2-27

TABLE 89 (Continued)

Material	Explosive	Temp, °C	Polymer Control	Explosive Control	Polymer and Explosive	Net Increase Due to Polymer	Remarks	Picatinny Report No.
Zinc Chromate Primer MIL-P-15328 with ST-69 Reducer	M-7	90	0.30	1.89	1.56	0.00	None	54-M2-27
	OGK	90	0.30	1.10	1.34	0.00	None	54-M2-27
	T-6	90	0.30	4.56	5.05	0.19	Negligible	54-M2-27
	T-16	90	0.30	2.90	3.97	0.77	Negligible	54-M2-27
	T-19	90	0.30	3.19	3.19	0.00	None	54-M2-27

TABLE 90

Appearance of Miscellanecus Resins After Storage

Material	Explosive	Storage, wks	Temp, °C	Appearance of Specimen	Picatinny Report No.
Acid Proof Black Paint	Comp A-3	24	76	No change	56-M2-27
	Comp B	24		No change	56-M2-27
	Comp C-4	6	71	Dissolved	51-8-26
	RDX			No change	56-M2-27
	Tetryl				
	TNT	24	71	No change	56-M2-27
Barralon	Black powder	24	76	No change	56-M2-26
	Tetryl	24	76	No change	56-M2-26
	TNT	20	71	Complete deterioration	56-M2-26
Clevelon	Black powder	24	76	No change	56-M2-26
	Tetryl	24	76	No change	56-M2-26
	TNT	20	71	Complete deterioration	56-M2-26
Conducto plast	T-6	20	50	No change	51-8-36
	T-6	20	50	No change	53-M2-80
Eronel Grease No. 900	Comp B	28	71	Becomes brittle	56-M2-22
Fiberglas	T-131	28	50	Darkens	56-M2-25
Glidden Cushioning Material No. 89	Comp B	24	76	Turns brown	56-M2-36
	Picratol	24	76	Turns yellow	56-M2-36
	Tetryl	24	76	Turns yellow	56-M2-36
	TNT	24	71	Turns brown	56-M2-36
	Tritonal	24	71	Turns brown	56-M2-36
Insulating Cmpd-150-PS-88	OIO	12	50	Turns orange	53-M2-45
Lining Cmpd PA-PD-128	Comp B	8	76	Softens and loses adhesion	52-M2-17
Metal Sealing Cmpd No. 1380 Red	T-6	10	50	Softens and becomes rubbery	52-M2-4

TABLE 90 (Continued)

Material	Explosive	Storage, wks	Temp, °C	Appearance of Specimen	Picatinny Report No.
Norfolk Varnish	Black powder	8	76	No change	52-M2-16
	M-7	8	50	Softens and loses adhesion	52-M2-16
Permatex No. 2	OGK	10	50	Softens and loses adhesion	52-M2-43
	T-2	10	50	Softens and loses adhesion	52-M2-43
	T-6	10	50	Softens and loses adhesion	52-M2-43
	T-8	10	50	Softens and loses adhesion	52-M2-43
	T-9	10	50	No change	52-M2-43
Royal Cement No. 6159	T-6	10	50	Softens	51-8-36
Zamak V	Tetryl	8	76	No change	52-M2-130
Zinc Chromate Primer Mil-P-15328 with ST-69 Reducer	M-7	10	50	No change	54-M2-27
	OGK	10	50	No change	54-M2-27
	T-6	10	50	No change	54-M2-27
	T-16	10	50	No change	54-M2-27
	T-19	10	50	No change	54-M2-27
Zinc Chromate Primer Spec. P-6839	M-7	10	50	No change	54-M2-27
	OGK	10	50	Softens and becomes lighter	54-M2-27
	T-6	10	50	Softens	54-M2-27
	T-16	10	50	Softens	54-M2-27
	T-19	10	50	Softens and loses adhesion	54-M2-27
Zinc Chromate Primer Jan P-735	M-7	10	50	No change	54-M2-27
	OGK	10	50	Softens	54-M2-27
	T-6	10	50	No change	54-M2-27
	T-16	10	50	No change	54-M2-27
	T-19	10	50	No change	54-M2-27

TABLE 91

Percent Change in Weight of Miscellaneous Resins After Storage

Material	Explosive	Storage, wks	Temp, °C	% Change, Control	% Change, Contact	Picatinny Report No.
Barcalon	Black powder	24	76	+0.81	+1.87	56-M2-26
	Tetryl	24	76	+0.81	+0.67	56-M2-26
	TNT	4	71	+0.81	Explosive adhered	56-M2-26
Clevelon	Black powder	24	76	+0.80	+0.83	56-M2-26
	Tetryl	24	76	+0.80	+2.24	56-M2-26
	TNT	8	71	+0.80	Explosive adhered	56-M2-26
Eronel Grease No. 900	Comp B	28	71	-4.18	Specimen crumbled	56-M2-22
Glidden Cushioning Material	Comp B	24	71	-1.69	-0.37	56-M2-36
	Picratol	24	71	-1.69	-0.62	56-M2-36
	Tetryl	24	76	-1.69	-1.88	56-M2-36
	TNT	24	71	-1.69	-0.48	56-M2-36
	Tritonal	24	71	-1.69	-0.76	56-M2-36
Insulating Compound	OIO	14	50	-0.08	+1.02	53-M2-45
Pre/Set Plasmount No. 2	Comp B	8	76	-0.37	+11.90	52-M2-47
	Tetryl	8	76	-0.37	+1.87	52-M2-47
	TNT	8	76	-0.37	+14.80	52-M2-47

TABLE 92

100°C Heat Test Results for Miscellaneous Resins

Material	Explosive	Loss in Weight 1st 48 Hours %	Gms	2nd 48 Hours %	Gms	Explosion in 100 Hours	Picatinny Report No.
Acoustic Cement	Dynamite						
0.6	0.6	0.0469	3.90	0.0199	1.65	None	52-M2-110
0.6	—	0.0113	1.88	0.0006	0.10	None	52-M2-110
—	0.6	0.0404	6.72	0.0226	3.76	None	52-M2-110
Acid Proof Black Paint	Lead Azide						
0.6	0.6	0.0070	0.59	0.0008	0.07	None	53-M2-89
0.6	—	0.0024	0.40	0.0009	0.15	None	53-M1-89
—	0.6	0.0043	0.72	0.0000	0.00	None	53-M2-89
	M-20 Primer Mix						
0.6	0.6	0.0050	0.41	0.0008	0.06	None	53-M2-89
0.6	—	0.0024	0.40	0.0009	0.15	None	53-M2-89
—	0.6	0.0019	0.32	0.0004	0.06	None	53-M2-89
Acid Proof Black Paint	Nol 130 Primer Mix						
0.6	0.6	0.0137	1.14	0.0028	0.23	None	53-M2-89
0.6	—	0.0024	0.40	0.0009	0.15	None	53-M2-89
—	0.6	0.0083	1.38	0.0015	0.25	None	53-M2-89
	Primer Mix 100						
0.6	0.6	0.0045	0.38	0.0006	0.05	None	53-M2-89
0.6	—	0.0024	0.40	0.0009	0.15	None	53-M2-89
—	0.6	0.0006	0.10	0.0000	0.00	None	53-M2-89
Casco Flexible Cement	Dynamite						
0.6	0.6	0.0434	3.61	0.0166	1.38	None	53-M2-110
0.6	—	0.0090	1.50	0.0006	0.10	None	52-M2-110
—	0.6	0.0404	6.72	0.0226	3.76	None	52-M2-110

EXPLOSIVE/POLYMER INDEX

Materials in Contact with:

Aluminum Flake

Material	Classification* As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Presstite No. 155	R	0.09	Polyisobutylene/Asbestos	Presstite Engineering Co.	13
Amatol					
Acrylated Alkyd MF-881	C	4.25	Polyester	Aberdeen Proving Ground	8
Acrylate Mixture MF-875	C	0.03	Acrylic	Aberdeen Proving Ground	1
Chlorinated Paraffin MF-877	C	0.26	Chlorinated hydrocarbon	Aberdeen Proving Ground	13
Coumarone Indene MF-874	P	10.02	Coumarone Indene	Aberdeen Proving Ground	13
Dampcoat Enamel	C	10.11	Rubberized Coating	Wilbur Williams Co.	11
Epoxy MF-876	P	4.40	Epoxy	Aberdeen Proving Ground	3
Formula No. 320	P	2.29	Miscellaneous	Wilbur Williams Co.	13
Formula No. 330	P	7.24	Miscellaneous	Wilbur Williams Co.	13
Permacel No. 30	A	5.83	Vinylite	Industrial Tape Corp.	12
Phthalic Drying Oil	C	4.37	Alkyd	Aberdeen Proving Ground	8
Styrenated Alkyd MF-882	C	5.85	Alkyd	Aberdeen Proving Ground	8
Vinyl Butyral MF-891	P	1.32	Vinylite	Aberdeen Proving Ground	12
Vinyl Chloride Acetate	P	2.26	Vinylite	Aberdeen Proving Ground	12
Vinyl-Toluene Alkyd	C	4.14	Alkyd	Aberdeen Proving Ground	8
Ammonium Perchlorate					
DYNH	P	0.00	Polyethylene	Bakelite Corp.	4

*C = Coating; A = Adhesive; P = Plastic; S = Sealant; R = Rubber; M = Mold Release Agent.

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Ammonal					
Teflon	P	0.01	Polyethylene	E.I. duPont deNemours & Co., Inc.	4
Barium Chromate/Potassium Perchlorate/Zirconium Nickel					
QRS-147	P	0.00_s	Polyester	Bakelite Corp.	8
Baratol					
BRR-18794	P	0.00	Epoxy	Bakelite Corp.	3
Cycleweld C-14	A	3.12	Epoxy	Cycleweld Cement Prod.	3
Barium Nitrate					
Cycleweld C-14	A	0.00	Epoxy	Cycleweld Cement Prod.	3
Black Powder					
Acid Causticbond	C	0.60_s	Vinylite	Wilbur and Williams Co.	12
Acrylic MF-875	A	0.00	Acrylate	Aberdeen Proving Ground	1
Acryloid B-72	C	0.38	Acrylate	Rohm and Haas	1
Amberlac No. 292	C	0.00	Polyester	Rohm and Haas	8
Araldite CN-503	A	0.00	Epoxy	Ciba Company Inc.	3
Armstrong N-111	A	0.06_s	Phenolic Rubber	Armstrong Cork Co.	11
Armstrong N-171	A	0.00	Synthetic Rubber	Armstrong Cork Co.	11
Bakelite BM-6260	P	0.00	Phenolic	Bakelite Corp.	7
Bakelite BRR-18795	A	0.04	Epoxy	Bakelite Corp.	3
Bartalon	A	0.00_s	Asphaltic	Plymouth Industrial Prod.	13

The subscript s indicates that storage reports are available.

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Bisonite M	C	0.00_s	Miscellaneous	—	13
Bondmaster No. 373	A	0.04_s	Synthetic Rubber	Rubber and Asbestos Corp.	11
Cellophane No. 300Pc	P	0.00	Cellulosic	E.I. duPont deNemours & Co., Inc.	2
Cellulose Acetate	P	0.00	Cellulosic	B.F. Goodrich Chem. Corp.	2
Cellulose Nitrate	P	0.00_s	Cellulosic	Selectronic Corp.	2
Clevelon	C	0.00_s	Asphaltic	Plymouth Industrial Prod.	13
Cycleweld C-14	A	0.00	Epoxy	Cycleweld Cement Prod.	3
Diacetate Cloth	P	0.00	Cellulosic		2
Durone	C	0.66	Miscellaneous	R.L. Chemical Co.	13
E.C. No. 770	A	0.00	Reclaimed Rubber	Minnesota Mining & Mfg.	11
E.C. No. 826	A	0.09	Synthetic Rubber	Minnesota Mining & Mfg.	11
E.C. No. 847	A	0.00	Elastomer	Minnesota Mining & Mfg.	11
E.C. No. 1236	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg.	11
Epon No. 828	P	0.00	Epoxy	Shell Chemical Corp.	3
Ethyl Cellulose	P	1.05	Cellulosic	Gering Prod. Inc.	2
Geon No. 1911	P	11.00	Vinylite	B.F. Goodrich Chem. Co.	12
Gray Glid Irons	P	0.00_s	Polyester	Glidden Co.	8
Green Sealing Cmpd.	S	0.00	Spec. Jan 30-71	E.I. duPont deNemours & Co., Inc.	13
Hot Dip 215	C	0.00	Cellulosic	Picatinny Arsenal	2
Hot Dip 222	C	0.00	Cellulosic	Picatinny Arsenal	2
Laminac No. 4116	A	0.00	Polyester	American Cyanamid Co.	8
Laminac No. 4134	A	0.13	Polyester	American Cyanamid Co.	8
Metal Sealing Cmpd.	S	0.00_s	Miscellaneous	E. I. duPont deNemours & Co., Inc.	13
Mylar	P	0.00	Polyester	E.I. duPont deNemours & Co., Inc.	8
Mylar Tape No. 7300	P	0.01	Polyester	E. I. duPont deNemours & Co., Inc.	8
Neoprene Gcm-10	R	0.00	Polysulfide Rubber	E.I. duPont deNemours & Co., Inc.	11
Norfolk Varnish	C	0.60	Miscellaneous	Norfolk, Mass.	13
O'Kuns Cold Solder	S	0.00	Organic Filler	A.L. O'Kun Co.	13
Phenol Formaldehyde Var.	C	0.00_s	Spec. AXS-1680	Picatinny Arsenal	7
Plastacele	C	0.00	Cellulosic	E. I. duPont deNemours & Co., Inc.	2
Pliobond No. 20	A	0.05	Synthetic Rubber	Goodyear Tire & Rubber Co.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Polyamide Hot Dip No. 220	C	0.00_s	Polyamide	Picatinny Arsenal	6
Polyethylene Grade P-1000	P	0.00	Polyethylene	E.I. duPont deNemours & Co., Inc.	4
Presstite No. 218	S	0.00	Aerodynamic Smoothing	Presstite Engineering Co.	13
Purple Lacquer	C	0.11_s	Jan-L-296	Picatinny Arsenal	2
QRS-136	P	0.17	Polyester	Bakelite Corp.	8
RD-51-24	P	0.00	Polystyrene	Bakelite Corp.	10
S-50 Polymer	P	0.00_s	Styrenated Isobutylene	Enjay Co., Inc.	10
Scotch Tape No. 650	A	0.00	Cellulosic	Minnesota Mining & Mfg. Co.	2
Silicone Adhesive No. XC-269	A	0.00	Silicone Rubber	Dow Corning Corp.	11
Silicone Adhesive No. XC-271	A	0.00	Silicone Rubber	Dow Corning Corp.	11
Silicone Grease Form-H	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease Form-G	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease A-20044	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease A-20046	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease 372-72-539	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease XC-4272	M	0.00	Soft Silicone Film	Dow Corning Corp.	9
Silicone Grease XC-4282	M	0.00	Soft Silicone Film	Dow Corning Corp.	9
Silicone Grease XC-5012	M	0.00	Soft Silicone Film	Dow Corning Corp.	9
Silicone Grease XCT-4045	M	0.09	Soft Silicone Film	Dow Corning Corp.	9
Silicone Electro-lub-pres-o-valve	M	0.00	Soft Silicone Film	General Electric Co.	9
Silk Grade E		0.00	Polyamide	Selectronic Corp.	6
Thiokol LP-2	R	0.00	Polysulfide Rubber	Thiokol Corp.	11
Type 2 Grade 7-AXS1762	P	0.00	Cellulosic	Joseph Davis Plastic Corp.	2
Triacetate cloth No. 26	P	0.00	Cellulosic		2
Vedoc No. 5250	C	0.09	Miscellaneous	Ferro Enamel Corp.	13
Vinylite MA-28-4	P	0.00_s	Vinylite	Picatinny Arsenal	12
Viskon R-75-D		0.10	Miscellaneous		13
VGNA No. 59679	P	0.00	Vinylite	Bakelite Corp.	12
Wash Primer X-2676B	C	0.00	Vinylite	Picatinny Arsenal	12
Zodeck No. 965	P	0.00	Miscellaneous	Presstite Engineering Co.	13
Viscose Rayon Cloth	P	0.00	Cellulosic		2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
		Composition A; A-3			
Acoustic Cement	A	0.00	Oleoresinous Base	Armstrong Cork Co.	13
Acid Proof Black Paint	C	0.00_s	Jan-P-450	Glidden Co.	13
Armstrong J-1140-B	A	0.00	Phenolic	Armstrong Cork Co.	7
Armstrong J-1140-D	R	0.00	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140-E	A	0.00	Cumar C-6	Armstrong Cork Co.	13
BRR-18793	P	0.00	Resin accelerator	Bakelite Corp.	3
BRR-18795	P	0.00	Epoxy	Bakelite Corp.	3
BRS-147	P	0.00	Polyester	Bakelite Corp.	8
Casco Flexible Cement	A	0.00_s	Miscellaneous	The Borden Co.	13
Cycleweld C-14	A	0.48	Epoxy	Cycleweld Cement Prod.	3
Durez No. 11864	P	1.54	Phenolic	Durez Plastics & Chem. Inc.	7
E.C. No. 801	A	0.76	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 847	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Silicone Grease Form-G	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease Form-H	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease A-20044	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease A-20046	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease 372-72-739	M	0.00	Soft Silicone Film	General Electric Co.	9
Silicone Grease XC-4272	M	0.00	Soft Silicone Film	Dow Corning Corp.	9
Silicone Grease XC-4282	M	0.00	Soft Silicone Film	Dow Corning Corp.	9
Silicone Grease XC-5012	M	0.00	Soft Silicone Film	Dow Corning Corp.	9
Silicone Grease XCT-4043	M	0.00	Soft Silicone Film	Dow Corning Corp.	9
Silicone Electro-lub-pres-o-valve	M	0.47	Soft Silicone Film	General Electric Co.	9
Stanley 77X576 (Plastisol)	P	0.22	Vinylite	Stanley Chemical Co.	12
Thiokol LP-2	R	0.00	Polysulfide Rubber	Thiokol Chemical Corp.	11
World Bestos	A	0.00	Phenolic	World Bestos Co.	7
XA-47 Resin	P	No Exp.	Miscellaneous	Minneapolis Honeywell Corp.	13

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Composition B					
Acoustic Cement	A	0.00	Oleoresinous Base	Armstrong Cork Co.	13
Acid Proof Black Paint	C	1.19	Jan-P-450	Glidden Co.	13
Acryloid B-72	C	0.00_s	Acrylate	Rohm and Haas Co.	1
Adhesive A-4000	A	0.00	Silicone	Dow Corning Corp.	11
Adhesive 43-D	A	0.00	Spec. PA-PD-155	Dewy & Almy Chem. Co.	13
Amberlac No. 292	C	0.00	Polyester	Rohm & Haas Co.	8
Araldite AN-111	P	0.06_s	Epoxy	Ciba Co. Inc.	3
Araldite CN-503	A	11.00	Epoxy	Ciba Co. Inc.	3
Araldite F	P	0.23	Epoxy	Ciba Co. Inc.	3
Araldite 2000-S	P	0.00	Epoxy	Ciba Co. Inc.	3
Araldite 33/900	A	10.43	Epoxy	Ciba Co. Inc.	3
Armstrong A-6	P	4.77	Epoxy	Armstrong Products Co.	3
Armstrong J-1140-B	A	0.27	Phenolic	Armstrong Cork Co.	7
Armstrong J-1140-D	R	0.00	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140-E	P	0.00	Cumar C-6	Armstrong Cork Co.	13
Armstrong N-111	A	2.42_s	Synthetic Rubber	Armstrong Cork Co.	11
Armstrong N-171	A	0.77	Synthetic Rubber	Armstrong Cork Co.	11
Atlas Glassfilled Polyester	P	0.00	Polyester	Thermaflow Chemical Corp.	8
Barrier Material PA203	C	0.13	Vinylite	Picatinny Arsenal	12
BM-6102	P	0.49	Phenolic	Bakelite Corp.	7
BM-13080	P	0.00	Phenolic	Bakelite Corp.	7
BRR-18795	P	9.81	Epoxy	Bakelite Corp.	3
BRS-147	P	0.14	Polyester	Bakelite Corp.	8
Bondmaster No. 373	A	0.04_s	Synthetic Rubber	Rubber & Asbestos Corp.	11
Bondmaster No. 620	P	0.00_s	Epoxy	Rubber & Asbestos Corp.	3
Bondmaster No. 698	P	0.00	Epoxy-Phenolic	Rubber & Asbestos Corp.	3
Butyl Rubber 5N-259	R	0.00	Butyl GR-I	Ohio Rubber Co.	11
Casco Flexible Cement	A	0.00	Miscellaneous	The Borden Co.	13

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
C-11 Copolymer	P	0.00	Polystyrene	Lionel Co. Inc.	10
Chemotex No. 823	P	2.51	Epoxy	Eutectic Welding Alloys Corp.	3
Chemotex No. 825	A	10.21	Epoxy	Eutectic Welding Alloys Corp.	3
Cycleweld C-14	A	10.49	Epoxy	Cycleweld Cement Prod.	3
Dioxime No. 1	R	0.00_s	Butyl Rubber	DeBell & Richardson Inc.	11
Dioxime No. 2	R	0.00_s	Butyl Rubber	DeBell & Richardson Inc.	11
Dryply No. 81	P	0.00	Polyester	Flexfirm Products	8
Duralac R-1900	P	0.00_s	Cellulosic	Duralac Chemical Corp.	2
Dynakon		0.00	Miscellaneous	Dynakon Corp.	13
Epon VI	A	3.17	Epoxy	Shell Chemical Corp.	3
Epon No. 828	A	10.64	Epoxy	Shell Chemical Corp.	3
Eronel Grease No. 900	M	0.00	Miscellaneous	Eronel Corp.	13
E.C. No. 711	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 826	A	3.94	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 847	A	0.00	Elastomer	Minnesota Mining & Mfg. Corp.	11
E.C. No. 981	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 1055	A	0.09	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 1113	S	0.05_s	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 1126	S	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 1202	S	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 1236	S	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 1365	S	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Corp.	11
E.C. No. 1469	S	0.00	Miscellaneous	Minnesota Mining & Mfg. Corp.	13
Exon No. 402 A	P	0.00	Vinylite	Firestone Plastic Co.	12
FM 10001	P	0.00_s	Polyamide	E.I. duPont de Nemours & Co., Inc.	6
Fiberglas	P	0.00	Polyester	Glass Fibers Inc.	8
Flexseal No. 258	S	0.00	Vinylite	Vibradamp Corp.	12
G.E. No. 12487	R	1.42	Phenolic/Rubber	General Electric Co.	7
G.E. No. 12490	P	0.00	Phenolic	General Electric Co.	7
G.E. No. 12494	R	2.64	Phenolic/Rubber	General Electric Co.	7
G.E. No. 12840	P	0.00	Phenolic	General Electric Co.	7

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Geon No. 8700	A	0.11	Vinylite	B.F. Goodrich Chem. Co.	12
Glidden Cushioning Mat	P	0.01	Miscellaneous	Glidden Co.	13
Glidden Sealer No. 589	S	0.00	Glycerol ester/rosin	Glidden Co.	13
Glidden Sealer No. 590	S	0.00	Coumarone-Indene	Glidden Co.	13
Glidden Sealer No. 591	S	0.00	Glycerol ester	Glidden Co.	13
Glidden Sealer No. 592	S	0.00	Glycerol ester/rosin	Glidden Co.	13
Glidden Sealer No. 598	S	0.00	Glycerol ester/rosin	Glidden Co.	13
Glidden Sealer No. 600	S	0.00	Glycerol ester/rosin	Glidden Co.	13
Glidpol No. 1017	A	0.00 s	Polyester	Glidden Co.	8
Gray Glid Irons	P	0.00 s	Polyester	Glidden Co.	8
H-00	C	0.00 s	Polyester	F.E. Schundler & Co.	8
H-35	C	0.00 s	Polyester	F.E. Schundler & Co.	8
Isolite No. 2112	P	0.30	Polyester	Schenectady Varnish Co.	8
Johnson's Wax W-5015	M	0.17	Miscellaneous	S.C. Johnson & Sons	13
Johnson's Wax W-5016	M	0.07	Miscellaneous	S.C. Johnson & Sons	13
Johnson's Wax W-6118	M	0.00	Miscellaneous	S.C. Johnson & Sons	13
Kralastic BM No. 2146	P	0.00 s	Modified Polystyrene	Naugatuck Chemical Co.	10
Laminac No. 4116	A	0.00	Polyester	American Cyanamid Co.	8
Laminac No. 4128	P	0.00 s	Polyester/Styrene	American Cyanamid Co.	8
Laminac No. 4134	P	0.00	Polyester/Styrene	American Cyanamid Co.	8
Laminated Fiberglas	P	0.00	Polyester	Glen L. Martin Co.	8
Lining Compound	C	0.48 s	Spec. PA-PD-128	Dewey & Almy Chemical Co.	13
Liquid Masking Tape	A	0.07	Miscellaneous	Sears Roebuck Co.	13
Lustrex Lt 373	P	0.56 s	Polystyrene	Monsanto Chemical Co.	10
MX-172	P	0.00	Polyester	Celanese Corp. of America	8
Magneta Grade Tubing	P	0.00 s	Silicone	Firestone Tire & Rubber Co.	9
Metaseal 19V5	A	0.01 s	Polyester	American Metaseal Corp.	8
Natural Knife Caulk.	P	0.00	Miscellaneous	Jaye Manufacturing Corp.	13
Panelyte Pc No. 41263	P	0.00 s	Acrylonitrile	St. Regis Sales Corp.	11
Paraplex P-43	A	0.00	Polyester	Rohm & Haas Co.	8

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Permatex No. 2	A	10.45	Gasket Sealant	Permatex Co. Inc.	13
Phenol-form. foam	P	0.85_s	Phenolic	Picatinny Arsenal	7
Plasmount Pre-Set No. 2	A	0.60_s	Miscellaneous	Girder Process Corp.	13
Plastic Cement VPX-27	P	0.00	Polystyrene	Victory Plastics Co.	10
Pliobond No. 20	A	3.19	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Polyester Glass Mat	P	0.13_s	Polyester	Baker McMillan Co.	8
Polypiastic MC	P	0.00_s	Polyester	Polyplastic Limited Inc.	8
Polystyrene (Modified)	P	0.00	Polystyrene	Picatinny Arsenal	10
Presstite No. 155-6	A	0.00	Sealant	Presstite Engineering Co.	13
Presstite No. 218	A	2.31	Sealant	Presstite Engineering Co.	13
Presstite No. 261	A	0.19	Sealant	Presstite Engineering Co.	13
Presstite No. 261-6	A	0.32	Sealant	Presstite Engineering Co.	13
Presstite No. 271	A	0.33	Sealant	Presstite Engineering Co.	13
Presstite Sealing Cmpd No. 144.41	S	0.43	Asphaltic	Presstite Engineering Co.	13
Pro-Seal EP-601A	R	2.46	Polysulfide	Coast Pro-Seal & Mfg. Co.	11
QRS-136	P	0.00	Polyester	Bakelite Corp.	8
QRS-147	P	0.00_s	Polyester	Bakelite Corp.	8
RD-49-105	P	0.00	Phenolic Foam	Bakelite Corp.	7
Rock Island I-18FE	R	0.14	Synthetic Rubber	Rock Island Arsenal	11
Rubber Comp. 32S153	R	0.00	GR-S	Ohio Rubber Co.	11
Rubber Comp. XP-214	R	0.05	Butadiene/Styrene	Ohio Rubber Co.	11
Rubber Comp. XP-217	R	0.18	Elastomer	Ohio Rubber Co.	11
Scotch Tape No. 650	A	1.03	Cellulosic	Minnesota Mining Mfg. Co.	2
Selectron Resin 5081	A	0.00	Polyester	Pittsburgh Plate Glass Co.	8
Silastic D-250	R	0.00	Silicone Rubber	Dow Corning Corp.	11
Silicone Grease No. G	M	1.21	Silicone film	General Electric Co.	9
Silicone Grease No. H	M	0.00	Silicone film	General Electric Co.	9
Silicone Grease A-20044	M	0.00	Soft film silicone	General Electric Co.	9
Silicone Grease A-20046	M	0.00	Soft film silicone	General Electric Co.	9
Silicone Grease 372-72-539	M	0.00	Soft film silicone	General Electric Co.	9
Silicone Grease XC-4272	M	0.00	Soft film silicone	Dow Corning Corp.	9

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Silicone Grease XC-4282	M	0.00	Soft film silicone	Dow Corning Corp.	9
Silicone Grease XC-5012	M	0.00	Soft film silicone	Dow Corning Corp.	9
Silicone Grease XCT-4043	M	0.00	Soft film silicone	Dow Corning Corp.	9
Silicone Grease Electro-Lub-Pres-o-Valve	M	0.52	Soft film silicone	General Electric Co.	9
Silastic D-250	R	0.00	Silicone Rubber	Dow Corning Chemical Co.	9
Styron No. 700	P	0.00	Polystyrene	Dow Corning Chemical Co.	10
Sulfur No. 1	R	0.00_s	Butyl Rubber	DeBell and Richardson Inc.	11
Sulfur No. 2	R	0.00_s	Butyl Rubber	DeBell and Richardson Inc.	11
Thiokol LP-2	R	1.43	Polysulfide Rubber	Thiokol Chemical Corp.	11
Tub Kove Sealing Strip	S	0.00	Vinylite	Keller Products Inc.	12
Turbotherm No. 105	P	0.00_s	Miscellaneous	Firestone Tire & Rubber Co.	13
Varglass Silicone Tubing	R	0.00	Silicone	Firestone Tire & Rubber Co.	11
Vinyl No. 6242	P	0.00	Polyvinyl Chloride	DeBell and Richardson Inc.	12
Vistanex B-120 Gel	S	0.00	Miscellaneous	Standard Oil Co.	13
Z2E Hypalon	R	0.00	Hypalon Rubber	Rock Island Arsenal	11
Z40 Silicone	R	0.00	Silicone Rubber	Rock Island Arsenal	11
Z46E Adiprene	R	0.00	Adiprene B Rubber	Rock Island Arsenal	11
Z47 Hycar 4021	R	1.01	Butyl Rubber	Rock Island Arsenal	11
Zorlock 965	A	0.00	Miscellaneous	Presstite Engineer Corp.	13
			Composition C-2		
Paraplex P-13	P	0.00	Polyester	Rohm & Haas Co.	8
Paraplex P-43	P	0.00	Polyester	Rohm & Haas Co.	8
Plaskon Alkyd-442	P	0.00	Polyester	Libbey Owens Ford Glass Co.	8
			Composition C-3		
Acoustic Cement	A	1.86	Oleoresinous Base	Armstrong Cork Co.	13
Alvar	A	0.55	Polyvinyl Acetate	Shawinigan Products Co.	12

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Armstrong J-1140B	A	1.15	Phenol-formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140D	R	1.10	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140E	A	0.12	Cumar C-6	Armstrong Cork Co.	13
BRR-18795	P	0.77	Epoxy	Bakelite Corp.	3
Casco Flexible Cement	A	0.11	Miscellaneous	The Borden Co.	13
Cohesive Gauze	S	0.12	Miscellaneous	Industrial Tape Corp.	13
Dispersite 1789	R	1.83_s	Reclaim Rubber	U.S. Rubber Co.	11
Dispersite 1822A	R	1.80_s	Butyl Rubber	U.S. Rubber Co.	11
E.C. No. 250	A	1.00	Synthetic Rubber	Minnesota Mining Mfg. Co.	11
E.C. No. 711	A	0.05	Synthetic Rubber	Minnesota Mining Mfg. Co.	11
Elvanol 70-05 (film)	C	4.47	Polyvinyl Alcohol	E.I. duPont de Nemours & Co., Inc.	12
Paraplex P-13	P	0.00_s	Polyester	Rohm & Haas Co.	8
Paraplex P-43	P	0.00^s	Polyester	Rohm & Haas Co.	8
Plaskon Alkyd-442	P	0.00^s	Polyester	Libbey Owens Ford Glass Co.	8
Pliobond No. 20	A	2.69_s	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Polyethylene	P	0.20_s	Polymerized ethylene	Visking Corp.	4
Saran (Type M film)	P	0.00^s	Vinylidene Chloride Resin	The Dow Chemical Co.	12
Titanox-TG	C	0.02	Inorganic Pigment	Titanium Alloys Mfg. Co.	13
Wodd Bestos	A	1.25	Phenolic/Acrylonitrile	Wodd Bestos Co.	7
Composition 4187 Cast Propellant					
Laminated fiberglas	P	0.90	Polyester		8
Composition C-4 (Harrisite)					
Acoustic Cement	A	0.00	Oleoresinous Base	Armstrong Cork Co.	13
Acid Proof Black Paint	C	0.73_s	JAN-P-450	Glidden Co.	13
Armstrong J-1140B	A	0.20	Phenol-formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140D	R	0.00	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140E	A	0.20	Cumar C-6	Armstrong Cork Co.	13
BV-1600	C	0.00	Phenol-formaldehyde	Bakelite Corp.	7

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Casco Flexible Cement	A	0.00	Miscellaneous	The Borden Co.	13
Dispersite 1789	R	0.00_s	Reclaimed Rubber	U.S. Rubber Co.	11
Dispersite 1822A	R	0.00_s	Butyl Rubber	U.S. Rubber Co.	11
Micarta	P	0.00	Phenol-formaldehyde	Westinghouse Electrical Corp.	7
Paraplex P-13	A	0.00	Polyester	Rohm & Haas Co.	8
Paraplex P-43	A	0.00	Polyester	Rohm & Haas Co.	8
Phenol-formaldehyde	P	0.00	Phenolic	Picatinny Arsenal	7
Plaskon No. 951	P	0.00	Polyester	Allied Chemical Corp.	8
Plaskon Alkyd-442	P	0.00	Polyester	Libbey Owens Ford Glass Co.	8
Plexiglas	P	0.00	Polymethylmethacrylate	Rohm & Haas Co.	1
Pliobond No. 20	A	1.90_s	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Polyethylene	P	0.00_s	Polymerized ethylene	Visking Corp.	4
Polystyrene	P	0.00	Polystyrene		10
Prufcoat	P	0.00	Polyvinyl chloride	Prufcoat Inc.	12
Resinox	P	0.20	Phenol-formaldehyde	Monsanto Chemical Co.	7
Saran (Type M film)	P	0.00_s	Vinylidene chloride	The Dow Chemical Co.	12
Silicone Grease Form G	M	0.04	Soft silicone film	General Electric Co.	9
Silicone Grease Form H	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease A-20044	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease A-20046	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease 372-72-539	M	0.04	Soft silicone film	General Electric Co.	9
Silicone Grease XC-4272	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease XC-4282	M	0.05	Soft silicone film	Dow Corning Corp.	9
Silicone Grease XC-5012	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease XCT-4043	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease Electro-Lub-Pres-o-valve	M	0.00	Soft silicone film	Dow Corning	9
Tygofilm TR-216	C	0.00	Miscellaneous	Liberty Powder Co.	13
Tygofilm TR-217	C	0.00	Miscellaneous	Liberty Powder Co.	13
Valpon 182C-7	C	0.50	Miscellaneous	Liberty Powder Co.	13
Varnish-Spec 3-167	C	0.00	Phenol-formaldehyde/linseed oil	Central Paint & Varnish Works	7

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
VF-612 (Acid Proof Black Paint)	C	0.00_s	Spec. AXS-1680, Phenolic	Bakelite Corp.	7
XV-1657	C	0.00_s	Phenol-formaldehyde	Bakelite Corp.	7
		Composition Smoke No. 259			
Taylor Grade XX	P	0.00	Phenol Laminate	Taylor Fibre Co.	7
Temflex No. 105	P	0.00	Polyvinyl chloride	Irvington Varnish & Insulator Co.	12
		75/25 Cyclotol			
Armstrong A-6	P	3.67	Epoxy	Armstrong Products Co.	3
Armstrong C-4	P	10.56	Epoxy	Armstrong Products Co.	3
BRR-18795	P	0.71	Epoxy	Bakelite Corp.	3
BRS-147	P	0.00_s	Polyester	Bakelite Corp.	8
Butvar-B76	P	0.00	Polyvinyl butyral	Monsanto Chem. Corp.	12
E.C. No. 801	A	0.76	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 847	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Furane X-2	P	0.00	Furfural-formaldehyde	Furane Plastics & Chem. Co.	5
Laminac No. 4116	A	0.00	Polyester	American Cyanamid Co.	8
Plastisol	P	0.00	Polyvinyl chloride	Stanley Chemical Co.	12
Hot Dip No. 215	P	0.50_s	Ethyl cellulose	Picatinny Arsenal	2
Polyamide Hot Dip No. 220	P	0.67_s	Polyamide	Picatinny Arsenal	6
Hot Dip No. 222	P	0.00	Cellulose Acetate Butyrate	Picatinny Arsenal	2
		Dynamite			
Acoustic Cement	C	No Exp.	Oleoresinous base	Armstrong Cork Co.	13
Armstrong J-1140B	A	No Exp.	Phenol-formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140D	R	No Exp.	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140E	A	No Exp.	Cumar C-6	Armstrong Cork Co.	13
Casco Flexible Cement		No Exp.	Miscellaneous	The Borden Co.	13

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			DBX		
Teflon	P	0.04	Polyethylene	E.I. duPont de Nemours & Co., Inc.	4
			Flash Powder Bullseye No. 2		
Acryloid B-72	C	0.00	Acrylate	Rohm & Haas Co.	1
Cycleweld C-14	A	8.74	Epoxy	Cycleweld Cement Products	3
Epon 828	A	2.34	Epoxy	Shell Chemical Corp.	3
Laminac No. 4116 with Vinylite	A	0.00	Polyester	American Cyanamid Co.	8
Polyethylene DE3422	P	0.00	Polymerized Ethylene	Bakelite Corp.	4
			Fuze Powder		
Armstrong N111	A	0.00	Epoxy	Armstrong Cork Co.	3
Cycopol S-102-5	A	0.00	Polyester alkyd	American Cyanamid	8
Enamel, Olive drab	C	0.00	MIL-E-10687 Miscellaneous		13
Exon, Type 400-XR-61	A	0.00	Polyvinyl chloride	Firestone Plastics Co.	12
Formula No. 38	—	0.00		Enjay Co., Inc.	
Hypolon S-2	P	0.00	Chlorosulfonated Polyethylene	E.I. du Pont de Nemours & Co., Inc.	4
Vistanex	R	0.00	Polyisobutylene	Standard Oil Co.	13
			Haleite		
Cellulose Acetate/Dibutyl Phthalate	P	1.24	Cellulosic	Chemaco Corp.	2
Ethyl Cellulose E59M2; E-12S6	P	0.22	Cellulosic	Tennessee Eastman	2
Geon No. 1911	P	1.05	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Geon No. 2046	P	1.10	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Lucite	P	1.20	Polymethyl methacrylate	E.I. du Pont de Nemours & Co., Inc.	1

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			HMX		
Furane X-2/CM	A	4.33$^+$	Furane	Furane Plastics Inc.	5
Eastman 910	A	0.21	Acrylate	Tennessee Eastman	2
Furane X-2/PC	A	2.95	Furane	Furane Plastics Inc.	5
Duralon 31/PC	A	3.53$^+$	Furane	General Mills	5
Duralon 31/CM	A	3.00	Furane	General Mills	5
Adiprene L	A	0.00	Urethane	E.I. du Pont de Nemours & Co., Inc.	11
Nylon 6501	P	0.53	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
			HMX/Exon		
Furane X-2/CM	A	0.77	Furane	Furane Plastics Inc.	5
Furane X-2/PC	A	0.00	Furane	Furane Plastics Inc.	5
			HBX		
Amberlite PR-115	A	0.00	Resorcinol-formal.	Rohm & Haas Co.,	7
BRS-136	P	0.51	Polyester	Bakelite Corp.	8
BRS-147	P	0.53$_s$	Polyester	Bakelite Corp.	8
Corfoam-114	P	1.21	Phenolic-foam	Rezolin, Los Angeles	7
Cycleweld C-14	A	10.11 4.84	Epoxy	Cycleweld Cement Prod.	3
Dryply No. 81	P	0.00	Polyester	Flexfirm Products	8
Epon No. 828	P	9.79	Epoxy	Shell Chemical Corp.	3
E.C. No. 870	R	0.03	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Hysol No. 6020	A	10.33$^+$ 2.03	Epoxy	Houghton Laboratories	3
Lockfoam C-408R	P	1.91	Polyurethane	Nopco	13
Micro-Balloons	P	0.53	Phenol-formaldehyde	Union Carbon & Carbide Co.	7
Neoprene	R	1.50	2-Chloro-Butadiene 1,3	Hughes Aircraft & Co.	11
Panelyte Pc No. 41263	P	0.00$_s$	Acrylonitrile Copolymer	St. Regis Sales Corp.	11
Presstite No. 155	S	0.79	Polyisobutylene/asbestos	Presstite Engineering Co.	13
Presstite No. 218	P	4.98	Aerodynamic Smoothing Cmpd.	Presstite Engineering Co.	13
Teflon	P	0.00	Polyethylene	E.I. du Pont de Nemours & Co., Inc.	4

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			Igniter Mix-K-29		
Bakelite BM-261	P	0.00	Phenolic	Bakelite Corp.	7
Ethyl Cellulose	P	0.00_s	Cellulosic	Chemaco Corp.	2
Polyethylene	P	0.00	Polyethylene	Visking Corp.	4
			JPN		
Allite	P	0.00_s	Polyester	Pittsburgh Plate Glass Co.	8
Armstrong A-1	A	7.58_s	Epoxy	Armstrong Cork Co.	3
Bakelite DE-3422	P	0.20	Polyethylene	Bakelite Corp.	4
CMC	P	0.00	Na Carboxymethyl Cellulose	Chemaco Corp.	2
Ethyl Cellulose No. 346	P	1.67_s	Cellulosic N-100	Chemaco Corp.	2
FM-3 Nylon	P	1.55_s	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Formvar "E"	P	0.00_s	Polyvinyl formal	Shawinigan Resins Ltd.	12
Furane X-2	A	7.44_s	Furfural formaldehyde	Furane Plastics & Chemical Co.	5
GR-1	R	0.00_s	Polyisobutylene-isoprene	Office of Reserve Rubber	11
GR-M	R	2.85	2-Chloro-1,3-Butadiene polymer	E.I. du Pont de Nemours & Co., Inc.	11
GR-S	R	0.00_s	Butadiene/styrene	E.I. du Pont de Nemours & Co., Inc.	11
Geon No. 404	P	0.00_s	Polyvinyl Chloride	B.F. Goodrich Chemical Co.	12
Hysol No. 6000	P	0.00_s	Epoxy Resin	Houghton Laboratories	3
KEL-F	P	0.00_s	Polytrifluoromonochloroethylene	M.W. Kellogg & Co.	4
Laminac No. 4116	P	0.00_s	Polyester	American Cyanamid Co.	8
Laminac No. 4125	P	0.00_s	Polyester Resin	American Cyanamid Co.	8
Laminac No. 4134	A	0.01_s	Polyester/Styrene	American Cyanamid Co.	8
Lustrex Lt. 373	P	0.64_s	Modified Polystrene	Monsanto Chem. Co.	10

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
MR-25C	P	0.00_s	Polyester Resin	Celanese Corp. of America	8
Monocork No. 100	R	0.00_s	Rubber Base	Armstrong Cork Co.	11
Monocork No. 500	R	2.48_s	Neoprene Base	Armstrong Cork Co.	11
Paraplex P-13	P	0.00_s	Polyester Resin	Rohm & Haas Co.	8
Paraplex P-43	P	1.61_s	Polyester Resin	Rohm & Haas Co.	8
Penacolite G1215A	P	0.09_s	Phenol-formaldehyde	Koppers Co. Inc.	7
Phenol-formaldehyde No. 2611	P	0.00	Cast Resin	Catalin Corp.	7
Plexene M	P	0.00_s	Styrene/acrylonitrile	Rohm & Haas Co.	10
Polyvinyl Alcohol A	P	1.20_s	Vinylite	E.I. du Pont De Nemours & Co., Inc.	12
Polyvinyl Alcohol B	P	0.00_s	Vinylite	Resistoflex Corp.	12
S-50 Polymer	P	0.00_s	Styrenated isobutylene	Enjay Co. Inc.	10
Selectron No. 5003	P	0.04_s	Polyester	Pittsburgh Plate Glass Co.	8
Silastic No. 150	P	0.00_s	Silicone Polymer	Dow Corning Corp.	11
Silastic No. 180	P	0.00_s	Silicone Polymer	Dow Corning Corp.	11
Styron No. 666	P	0.00_s	Polystyrene	Dow Chemical Co.	10
Teflon	P	0.00_s	Polytetra fluoroethylene	E.I. du Pont de Nemours & Co., Inc.	4
Thiokol-1605AH	R	0.00_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol-1620AH	R	0.34_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol-3000FH	R	0.50_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol-3000PR-1	R	0.40_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol-3000 ST	R	0.00_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol-3600 ST	R	0.00_s	Polysulfide Rubber	Thiokol Chemical Corp.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Lead Azide					
Acid Proof Black Paint	C	No Exp.	JAN-P-450	Glidden Co.	13
Amberlac No. 292	C	No Exp.	Polyester	Rohm & Haas	8
BM-261	P	No Exp.	Phenolic	Bakelite Corp.	7
Cycopol-S102-5	C	No Exp.	Styrenated Alkyd	American Cyanamid Co.	8
Dex-o-Tex	R	No Exp.	Neoprene Conductive	Crossfield Products	11
Dioxime No. 1 and 2	R	0.00_s	Butyl Rubber	DeBell and Richardson Inc.	11
Durite HR-340	P	No Exp.	Phenolic Resin	Durite Plastics Inc. (The Borden Co.)	7
E.C. 373	A	No Exp.	Epoxy	Minnesota Mining & Mfg. Co.	3
Epon 828	P	No Exp.	Epoxy	Shell Chemical Corp.	3
Fortran No. 404	P	0.00	Polyvinyl chloride	Thermoplastic Plastics Corp.	12
Glaskyd No. 1901	P	No Exp.	Polyester	Olin Industries	8
Green Enamel	C	No Exp.	Spec. MIL-E-10687	American Cyanamid Co.	2
Green Lacquer	C	No Exp.	Spec. MIL-E-10287	American Cyanamid Co.	2
Hypolon No. S-2	C	No Exp.	Chlorosulfonated polyethylene	E.I. du Pont de Nemours & Co., Inc.	4
Panelyte Pc 41263	P	No Exp.	Acrylonitrile Copolymer	St. Regis Sales Corp.	11
Phenolformaldehyde Varnish	P	0.00	Phenol-formaldehyde	Picatinny Arsenal	7
Phenolic Spacers	P	No Exp.	Pc MK 73-2-250G Varnish	Bakelite Corp.	7
Polyester film tape No. 850	P	No Exp.	Polyester	Minnesota Mining Mfg. Co.	8
Marriobl Metal Laminate	A	No Exp.	Blue Aluminum backed PVC		12
Red Enamel	C	No Exp.	Spec. MIL-E-10687	American Cyanamid Co.	2
Red Lacquer	C	No Exp.	Spec. MIL-L-10287	American Cyanamid Co.	2
S-50 Polymer	P	No Exp.	Styrenated-isobutylene	Enjay Co. Inc.	10
Sulfur No. 1	R	0.00_s	Butyl Rubber	DeBell and Richardson Inc.	11
Sulfur No. 2	R	0.00	Butyl Rubber	DeBell and Richardson Inc.	11
Titeseal Brush-on	S	0.00	Gasket Cement	Radiator Specialty Co.	13
Zapon 3-291-A	C	0.00	Phenol-formaldehyde Aluminum	Atlas Powder Co.	7

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			MI		
Armstrong N-111	A	0.00_s	Synthetic Rubber	Armstrong Cork Co.	11
Armstrong N-171	A	0.00	Synthetic Rubber	Armstrong Cork Co.	11
Briggs Rubber No. 107	R	0.00_s	Butadiene Acrylonitrile	Briggs Rubber Co.	11
Cellulose Acetate/Dibutyl Phthalate	P	0.18	Cellulosic	Chemaco Corp.	2
Cellulose Nitrate film	A	0.00_s	Cellulosic	Selectronic Corp.	2
Diacetate Cloth-Bale 25	—	0.00	Cellulosics		2
Filament Tape No. 880	A	0.00	Glass Fiber/Adhesive Backing	Minnesota Mining Mfg. Co.	13
Filament Tape No. 890	A	0.00	Glass Fiber/Adhesive Backing	Minnesota Mining Mfg. Co.	13
Geon No. 1911	P	0.18	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Geon No. 2046	P	0.20	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Hycar 72-248	R	0.00_s	Rubber Acrylonitrile	Goodyear Rubber Co.	11
Laminac No. 4116	A	0.13	Polyester/Styrene	American Cyanamid Co.	8
Laminac No. 4134	A	0.00	Polyester/Styrene	American Cyanamid Co.	8
Plastacele	A	0.26	Cellulosic		2
Pliobond No. 20	A	1.25	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
QRS-136	P	0.00	Polyester	Bakelite Corp.	8
Rubber Comp. W-4930	R	0.00	Synthetic Rubber	Raybestos-Manhattan Inc.	11
SRF-172-2	R	0.00	Synthetic Rubber	Firestone Plastics Co.	11
SRF-172-1A	R	0.00	Synthetic Rubber	Firestone Plastics Co.	11
SRF-172-3	R	0.00	Synthetic Rubber	Firestone Plastics Co.	11
Scotchweld No. 585	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Silastic 50-24-480	R	0.00_s	Silicone Rubber	Dow Corning Co.	11
Silastic 80-24-480	R	0.94_s	Silicone Rubber	Dow Corning Co.	11
Silicone Stopcock Grease	M	0.00	Silicone polymer	Dow Corning Co.	9
Silk Grade E	—	0.00_s	Spec. JAN-C-539	Selectronic Corp.	6
Tenite II, 203A-S2	P	0.21	Cellulosic	Tennessee Eastman Co.	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Thiokol LP-2	R	0.00	Polysulfide Rubber	Thiokol Chemical Corp.	11
Vinylite	P	0.00_s	Polyvinyl Chloride	Noma Electrical Corp.	12
Viskon R-55-S	P	0.00			
Viskon R-65-S		0.00			
Viskon R-85-D		0.00			
		Lead Styphnate			
Durite HR-340	P	No Exp.	Phenolic	The Borden Co.	7
		IMR-4379 Propellant			
Cycleweld C-14	A	0.00	Epoxy	Cycleweld Cement Prod.	3
		IM-142 Incendiary Compound			
Cycleweld C-14	A	0.00	Epoxy	Cycleweld Cement Prod.	3
		M2			
Araldite No. 102	P	6.61_s	Epoxy	Ciba Company Inc.	3
Armstrong A-3	A	2.77_s	Epoxy	Armstrong Products Co.	3
Armstrong N-111	A	0.89_s	Synthetic Rubber	Armstrong Cork Co.	11
BM-6102	P	2.83_s	Phenolic	Bakelite Corp.	7
Cellulose Acetate/Dibutyl Phthalate	P	5.98	Cellulosic	Chemaco Corp.	2
Dex-o-Tex	R	0.55	Neoprene Conductive	Crossfield Products	11
Diacetate Cloth-Bale 25		0.00	Cellulosics		2
Durez No. 12041	A	1.62_s	Phenolic	Durez Plastics & Chemical Inc.	7
Durez No. 13348	R	8.48_s	Rubber Phenolic	Durez Plastics & Chemical Inc.	7
Durez No. 14658	R	8.45_s	Rubber Phenolic	Durez Plastics & Chemical Inc.	7

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Enrup No. 2507-F4	P	2.57_s	Rubber Phenolic	United States Rubber	7
Enrup No. 2530	P	2.92_s	Rubber Phenolic	United States Rubber	7
Enrup No. 2532-F2	P	2.59_s	Rubber Phenolic	United States Rubber	7
Enrup No. 2537-F	P	4.43_s	Rubber Phenolic	United States Rubber	7
Exon No. 402A	P	1.09	Polyvinyl chloride	Firestone Plastics Co.	12
G.E. No. 12487	P	6.02_s	Wood flour filled Phenolic/ nitrile rubber	General Electric Co.	7
G.E. No. 12809	P	5.72	Chopped fabric filled Phenolic/nitrile rubber	General Electric Co.	7
Geon No. 404	P	0.00	Polyvinyl chloride	B.F. Goodrich Chemical Co.	12
Geon No. 2046		3.81	Polyvinyl chloride	B.F. Goodrich Chemical Co.	12
Geon No. 8700	P	0.39	Polyvinyl chloride	B.F. Goodrich Chemical Co.	12
Geon No. 1911	P	4.78	Polyvinyl chloride	B.F. Goodrich Chemical Co.	12
Mylar	P	1.32	Polyethylene Terephthalate	Mystic Adhesive Prod.	8
Plastacele	P	4.55	Cellulosic	Tennessee Eastman	2
Polyurethane foam	P	0.92	Polyurethane	Burnett Co.	11
Presstite 106	R	0.81_s	Polysulfide Rubber	Presstite Engineering Corp.	11
QRS-136	P	0.00_s	Polyester	Bakelite Corp.	8
Synthetic Rubber W-4610B	R	0.86_s	Synthetic Rubber	Manhattan Rubber Mfg. Co.	11
Synvar No. 85651	P	8.39_s	Rubber Phenolic	Synvar Corp.	7
Synvar No. 86512	P	5.13_s	Rubber Phenolic	Synvar Corp.	7
Tenite II 203A-52	P	4.48	Cellulosic	Tennessee Eastman	2
Vinylite	P	0.00_s	Polyvinyl chloride	Noma Electrical Corp.	12
XP-195 GRS	R	0.00_s	Synthetic Rubber	Picatinny Arsenal	11
Natural Rubber	R	0.00	Elastomer		11
			M6		
Filament Tape No. 880	S	0.00	Glass Fibers/Adhesive Backing	Minnesota Mining & Mfg. Co.	13

Material	Classification As to Use	Reactivity (gas, evolution, ml)	Type Base	Manufacturer of Material	Section
Filament Tape No. 890	S	0.00	Glass Fibers/Adhesive Backing	Minnesota Mining & Mfg. Co.	13
Laminac No. 4116	A	0.00	Polyester/styrene	American Cyanamid Co.	8
Laminac No. 4134	A	0.08	Polyester/styrene	American Cyanamid Co.	8
Mylar	P	0.00	Polyethylene Terephthalate	Mystic Adhesive Prod.	8
Polyurethane foam	P	1.53	Polyurethane	Barnett Co.	11
PS-10-13N	R	0.0[illegible]	Synthetic Rubber	Parker Appliance Co.	
Presstite No. 261	A	0.[illegible]		Presstite Engineering Co.	
Presstite No. 261-6	A	0.[illegible]		Presstite Engineering Co.	
Presstite No. 271	A	0.46		Presstite Engineering Co.	
Rubber Comp. W-4930	R	0.00_s	Synthetic Rubber	Raybestos Manhattan Inc.	11
Rubber Comp. No. 5420-15	R	0.00_s	Synthetic Rubber	Quaker Rubber Co.	11
Rubber Comp. No. 5420-45	R	0.00_s	Synthetic Rubber	Quaker Rubber Co.	11
Rubber Comp. No. 5420-60	R	0.00_s	Synthetic Rubber	Quaker Rubber Co.	11
Rubber Comp. RF 60	R	0.00_s	Synthetic Rubber	Collins Packing Co.	11
SX 1883-Rubber Comp.	R	0.00_s	Synthetic Rubber	Acushnet Rubber Co.	11
SX 1884-Rubber Comp.	R	0.00_s	Synthetic Rubber	Acushnet Rubber Co.	11
Shell No. 422	R	0.00	Epoxy	Shell Chemical Corp.	3
Silicone Stopcock Grease	M	0.00	Silicone film	Dow Corning Co.	9
			M7		
Acrylated Alkyd MF-SS1	C	0.00	Polyester	Aberdeen Proving Ground	8
Acrylic MF-8[illegible]5	C	0.00	Acrylic Ester	Aberdeen Proving Ground	1
Ankoseal No. 436	P	0.00	Polyvinyl Chloride	Noma Electrical Corp.	12
Chlorinated Paraffin	C	0.00	Miscellaneous	Aberdeen Proving Ground	13
Coumarone Indene	C	0.00	Coumarone-Indene	Aberdeen Proving Ground	13
E.C. No. 52[illegible]	A	1.73	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 8[illegible]	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1236	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Epoxy MF-876	A	3.96	Epoxy	Armstrong Cork Co.	3
Ethyl Cellulose Lacquer	C	0.00_s	Cellulosic	Picatinny Arsenal	2
Gering X-6178-87-1	P	0.63	Ethyl Cellulose/Polyvinyl Butyral	Hercules Powder Co.	2
Laminac No. 4116	A	0.00_s	Polyester	American Cyanamid Co.	8
Laminac No. 4134	A	0.00_s	Polyester	American Cyanamid Co.	8
Norfolk Varnish	C	0.00_s	Miscellaneous	Norfolk, Mass.	13
Phthalic Alkyd (Drying Oil-MF-884)	C	0.00	Polyester	Aberdeen Proving Ground	8
Polyethylene-Grade P-1000-PM20	P	0.00	Polyethylene	E.I. du Pont de Nemours Co. Inc.	4
Presstite No. 106	R	0.85_s	Polysulfide Rubber	Presstite Engineering Co.	11
Presstite No. 218	P	8.82	Aerodynamic Smoothing Cmpd.	Presstite Engineering Co.	13
Presstite No. 261	A	0.00	Sealant	Presstite Engineering Co.	13
Presstite No. 261-6	A	0.04	Sealant	Presstite Engineering Co.	13
Presstite No. 271	A	1.70	Sealant	Presstite Engineering Co.	13
Purple Lacquer	C	0.00_s	JAN-L-296	Picatinny Arsenal	2
Rubber Cmpd. XP-76	R	0.30_s	Butadiene/Styrene	Picatinny Arsenal	11
S-50 Polymer	P	0.00_s	Styrenated-isobutylene	Picatinny Arsenal	10
Styrenated Alkyd-MF-882	C	0.00	Polyester	Aberdeen Proving Ground	8
Tenite II 265 MS	P	0.00_s	Cellulose Acetate Butyrate	Tennessee Eastman Corp.	2
Vinyl Toluene Alkyd	C	0.00	Polyester	Aberdeen Proving Ground	8
Vinyl Acrylic Comp-VAGH	P	0.00_s	Polyvinyl Chloride Acetate	Bakelite Corp.	12
Vinyl Butyral Acetate-MF-871	C	0.00	Vinyl Butyrate	Aberdeen Proving Ground	12
Vinyl Chloride Acetate-MF-872	C	0.00	Vinyl Chloride Acetate	Aberdeen Proving Ground	12
Vinyl Covered Wire	C	0.00_s	Vinylite	Atlas Powder Co.	12
			M8		
Cellophane M-SAT-84	S	0.94	Regenerated Cellulose	E.I. du Pont de Nemours & Co., Inc.	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Cellophane MIL-50-11-151	S	0.04	Regenerated Cellulose	E.I. du Pont de Nemours & Co., Inc.	2
Cycleweld C-14	P	6.79	Epoxy Resin	Cycleweld Cement Products	3
Dobeckman M-SAT	A	0.00_s	Cellophane	The Dobeckman Co.	2
Dobeckman M-SAT-L-86	A	0.00_s	Cellophane	The Dobeckman Co.	2
Dobeckman H-50-M-SAT-86	A	6.80_s	Cellophane	The Dobeckman Co.	2
Ethocel Lt 51	P	Storage only	Ethylcellulose	The Dow Chemical Co.	2
Exon No. 402	P	0.00	Polyvinyl Chloride	Firestone Plastics Co.	12
Geon No. 8700	P	0.55	Polyvinyl Chloride	B.F. Goodrich Chemical Co.	12
Pliofilm	R	0.00	Rubber hydrochloride film	Goodyear Tire & Rubber Co.	11
Cellulose Hot Dip No. 215	C	1.93_s	Ethyl Cellulose	Picatinny Arsenal	2
Polyamide Hot Dip No. 220	C	4.22_s	Polyamide	Picatinny Arsenal	6
Cellulose Hot Dip No. 222	C	0.00_s	Cellulose Ace. Butyrate	Picatinny Arsenal	2
Shellmar No. 971-R	A	0.00_s	Cellophane	Shellmar Products Corp.	2
Shellmar No. 1037-B	A	0.00	Cellophane	Shellmar Products Corp.	2
Thiokol LP-2	R	0.00	Polysulfide Rubber	Thiokol Corp.	11
			M9		
Acryloid B-72	C	5.06_s	Acrylic Ester	Rohm & Haas Co.	1
Briggs No. 107	R	0.14_s	Butadiene/Acrylonitrile	Briggs Rubber Products Co.	11
Cellulose Nitrate film	P	0.00	Cellulosic	Selectronic Corp.	2
Cycleweld C-14	A	5.28	Epoxy/Polysulfide	Cycleweld Cement Products	3
Dex-o-Tex	R	0.00	Neoprene Conductive	Crossfield Products Co.	11
E.C. 582-IS-2	S	0.92	Cellulosic		2
E.C. 15570	S	0.70	Cellulosic		2
Ethyl Cellulose	P	0.00_s	Cellulosic	Hercules Powder Co.	2
S-RF 172-1A	R	0.14	Silicone Rubber	Firestone Tire & Rubber Co.	11
S-RF 172-2	R	1.02_s	Silicone Rubber	Firestone Tire & Rubber Co.	11
S-RF 172-3	R	1.10_s	Silicone Rubber	Firestone Tire & Rubber Co.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Hycar 72-248	R	0.27_s	Butadiene/Acrylonitrile	Goodyear Rubber Co.	11
Lustrex LT 373	P	0.00_s	Polystyrene	Monsanto Chemical Co.	10
Old Gering Plastic X6178-87-1	P	0.00_s	Ethyl Cellulose/Polyvinyl Butyral	Hercules Powder Co.	2
Orox V	P	0.00	Molding Resin	Onyx Oils & Resins Inc.	13
Plio-tuf GP-75	P	0.00	Styrene/Butadiene	Goodyear Tire & Rubber Co.	11
Polyethylene	P	0.58	Polyethylene		4
Polyethylene Silk Laminate	P	0.08	Polyethylene	Picatinny Arsenal	4
Polystyrene	P	0.00_s	Straight Polystyrene	Chicago Molded Product, Inc.	10
Polystyrene sealer (solution)	S	0.84_s	Polystyrene/toluene	Monsanto Chemical Co.	10
Presstite 106	R	0.08_s	Polysulfide Rubber	Presstite Engineering Co.	11
Rayon-wax coated	P	0.00	Microcrystalline wax/ polyisobutylene	Transwrap & Co.	13
Silastic 50-24-480	R	0.27_s	Silicone Rubber	Dow Corning Corp.	11
Silastic 80-24-480	R	0.00_s	Silicone Rubber	Dow Corning Corp.	11
Silk	P	0.00	Protein-Organic		6
Thiokol LP-2	R	0.00	Polysulfide	Thiokol Corp.	11
Zorlock No. 965	P	0.00	Miscellaneous	Presstite Engineering Co.	13
			M-10		
Araldite CN-503	A	0.00	Epoxy	Ciba Chemical Corp.	3
Cellulose Nitrate film	P	3.73	Cellulosic	Selectronic Corp.	2
Corfoam No. 114	P	1.69	Phenolic	Rezolin, Los Angeles	7
Cycleweld C-14	A	0.00_s	Epoxy/Polysulfide	Cycleweld Cement Prod.	3
E.C. No. 1113	S	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Epon 828 with A	P	0.00	Epoxy	Shell Chemical Corp.	3
Fortisan	P	0.00	Cellulose Acetate	Celanese Corp. of America	2
Mylar Tape	P	0.00	Polyethylene Terephthalate	E.I. du Pont de Nemours & Co., Inc.	8
Cellulose Hot Dip No. 215	C	0.00_s	Ethyl Cellulose	Picatinny Arsenal	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Polyamide Hot Dip No. 220	C	0.00_s	Polyamide	Picatinny Arsenal	6
Cellulose Hot Dip No. 222	C	0.00_s	Cellulose Acetate Butyrate	Picatinny Arsenal	2
Scotch Tape No. 650	A	0.09	Cellulose Nitrate	Minnesota Mining & Mfg. Co.	2
Shell No. 422	A	0.00	Epoxy	Shell Chemical Corp.	3
Vinylite Pipe Marker	C	0.00	Polyvinyl Chloride	Picatinny Arsenal	12
			M-15		
Acrylated Alkyd MF-881	C	0.00	Polyester	Aberdeen Proving Ground	8
Acrylic MF 875	C	0.00	Acrylic Ester	Aberdeen Proving Ground	1
Chlorinated Paraffin	C	0.00	Chlorinated Hydrocarbon	Aberdeen Proving Ground	13
Coumarone Indene	C	0.00	Coumarone-Indene Resin	Aberdeen Proving Ground	13
Diacetate cloth - Bale 25		0.00	Cellulosic	Aberdeen Proving Ground	2
Epoxy MF-876	C	6.39	Epoxy	Aberdeen Proving Ground	3
Phthalic Drying oil Alkyd MF-884	C	0.00	Polyester	Aberdeen Proving Ground	8
Styrenated Alkyd MF-882	C	0.03	Polyester	Aberdeen Proving Ground	8
Vinyl Butyral Acetate	C	0.00	Vinyl Butyral Acetate	Aberdeen Proving Ground	12
Vinyl Chloride Acetate	C	0.00	Vinyl Butyral Acetate	Aberdeen Proving Ground	12
Vinyl Toluene Alkyd MF-883	C	0.00	Polyester	Aberdeen Proving Ground	8
			M-16		
Durez 1905	P	0.36	Phenolic	Durez Plastic & Chem. Co.	7
			M-17		
Briggs Rubber No. 107	R	0.85_s	Butadiene/Acrylonitrile	Briggs Rubber Co.	11
Dex-o-Tex	R	0.90	Neoprene Conductive	Crossfield Products	11
Hycar 72-248	R	0.94_s	Butadiene/Acrylonitrile	B.F. Goodrich Chemical Co.	11
Mylar Tape	P	0.00	Polyethylene/Terephthalate	Mystic Adhesive Prod.	8
Polyurethane Foam 6 lb/cu. ft. density	P	7.94	Polyurethane	Picatinny Arsenal	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
S-FR-172-1A	R	3.79	Silicone Rubber	Firestone Tire & Rubber Co.	11
S-FR-172-2	R	4.46_s	Silicone Rubber	Firestone Tire & Rubber Co.	11
S-FR-172-3	R	9.28_s	Silicone Rubber	Firestone Tire & Rubber Co.	11
Silastic 50-24-480	R	0.00_s	Silicone Rubber	Dow-Corning Corp.	11
Silastic 80-24-480	R	0.00_s	Silicone Rubber	Dow-Corning Corp.	11
Vinylite Pipe Marker	C	0.00	Polyvinyl Chloride	Picatinny Arsenal	12
			M-20		
Cycopal S-102-5	C	No Exp.	Polyester	American Cyanamid Co.	8
			Mercury Fulminate		
Fortran No. 404	P	No Exp.	Polyvinyl Chloride	Thermoplastics Plastic Corp.	12
Polyethylene	P	No Exp.	Polyethylene	Bakelite Corp.	4
			MOX-2B		
BRR-18795	P	0.00	Epoxy	Bakelite Corp.	3
Durez-16621	P	0.00	Phenolic Resin	Durez Plastics & Chems, Inc.	7
Laminac No. 4116	A	0.00	Polyester Resin	American Cyanamid Co.	8
Plaskon No. 951	P	0.00	Polyester	Allied Chem. & Dye Corp.	8
Plaskon Alkyd No. 442	P	0.00	Polyester	Libbey Owens Ford Glass Co.	8
Pliobond No. 30	A	0.27_s	Rubber	Goodyear Tire & Rubber Co.	11
Titanox-TG	C	0.00	Inorganic Pigment	Titanium Alloys Mfg. Co.	13
			MRP		
Allite	P	0.00	Polyester	Pittsburgh Plate Glass Co.	8
Armstrong A-1	A	8.10_s	Epoxy	Armstrong Products Co.	3
CMC	P	0.00	Na Carboxymethyl Cellulose	Chemaco Corp.	2
DE-3422	P	0.00	Polyethylene	Bakelite Corp.	4

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Ethyl Cellulose No. 346	P	1.72	Ethyl Cellulose	Chemaco Corp.	2
Formvar "E"	P	0.00	Polyvinyl formvar	Shawinigan Resins Ltd.	12
Furane X-2	A	7.96	Furfural Aldehyde	Furane Plastics & Chem. Co.	5
GR-I (XP-143)	R	0.00	Polyisobutylene isoprene	E.I. du Pont de Nemours & Co., Inc.	11
GR-M (XP-145)	R	1.72	2-Chloro-1,3-Butadiene	E.I. du Pont de Nemours & Co., Inc.	11
GR-S (XP-142)	R	0.47	Butadiene Styrene	E.I. du Pont de Nemours & Co., Inc.	11
Geon No. 404	P	0.00	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12*
Hysol No. 6000	A	0.00 s	Epoxy	Houghton Labs. Inc.	3
KEL-F	P	0.00 s	Trifluoro-chloropolyethylene	M.W. Kellogg Co.	4
Laminac No. 4116	A	0.00	Polyester, styrene	American Cyanamid Co.	8
Laminac No. 4125	A	0.00	Polyester, styrene	American Cyanamid Co.	8
Laminac No. 4134	A	0.00	Polyester, styrene	American Cyanamid Co.	8
Lustrex-LT 373	P	0.40	Styrene	Monsanto Chem. Co.	10
"MR" 25C	P	0.00	Polyester	Celanese Corp. of America	8
Monocork No. 100	R	2.00	Rubber Base	Armstrong Cork Co.	11
Monocork No. 500	R	8.84	Neoprene	Armstrong Cork Co.	11
Nylon FM No. 1	P	0.39	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Nylon FM No. 3	P	1.08	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Paraplex P-13	P	0.00	Polyester	Rohm & Haas Co.	8
Paraplex P-43	P	0.00	Polyester	Rohm & Haas Co.	8
Penacolite G-1215A	P	0.00	Phenol formaldehyde	Koppers Co. Inc.	7
Phenol-formaldehyde No. 2611	P	0.00	Phenol formaldehyde	Catalin Corp.	7
Plexene "M"	P	0.00	Styrene Acrylonitrile	Rohm & Haas Co.	10
Polyvinyl Alcohol-A	P	0.00	Vinylite	E.I. du Pont De Nemours & Co., Inc.	12
Polyvinyl Alcohol-B	P	0.49	Vinylite	Resistoflex Corp.	12
Polyvinyl Formal	R	0.00	Polyvinyl Formal	Picatinny Arsenal	12
Polystyrene	P	0.00	Polystyrene	Enjay Co. Inc.	10
S-50 Polymer	P	0.07	Styrene Isobutylene	Enjay Co. Inc.	10
Saran (Type M film)	P	2.33	Vinylidene Chloride Resin	The Dow Chemical Co.	12
Selectron No. 5003	P	0.91	Polyester	Pittsburgh Plate Glass Co.	8
Silastic No. 150	R	0.00	Silicone Rubber	Dow Corning Corp.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Silastic No. 180	R	0.00	Silicone Rubber	Dow Corning Corp.	11
Styrene	P	0.00	Styrene	Picatinny Arsenal	10
Styron No. 666	P	0.00	Polystyrene	Dow Chemical Corp.	10
Teflon	P	0.00	Polytetrafluoroethylene	E.I. du Pont De Nemours & Co., Inc.	4
Thiokol No. 3000	R	1.54	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 3600	R	0.00	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 1620	R	0.47	Polysulfide Rubber	Thiokol Chemical Corp.	11
Non-gaseous Powder Type II Class A-Spec. AXS-1277					
Metacel Tape	A	0.00	Aluminum back pressure-sensitive tape	Industrial Tape Corp.	13
Navy Explosive H-6					
Alvar	P	0.03	Polyvinyl Acetal Resin	Shawinigan Products	12
BRR-18795	P	10.80	Epoxy Resin	Bakelite Corp.	3
Titanox TG	C	0.00	Inorganic Pigment	Titanium Alloys Mfg. Co.	13
Potassium Dinitro benzofuraxan					
Durite-HR-340	P	No Exp.	Phenolic	The Borden Co.	7
Photoflash Powder Type I					
Resinox 5797	P	0.29	Phenolic	Monsanto Chem. Co.	7
Bakelite BM-6260	P	1.64	Phenolic	Bakelite Corp.	7
Potassium Chlorate Primer					
Taylor Grade XX Laminate	P	0.00	Phenolic	Taylor & Co.	7
Bakelite BM-6260	P	0.00	Phenolic	Bakelite Corp.	7

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			NRL Propellant		
Bakelite BM-250	P	0.00	Phenolic	Bakelite Corp.	7
			OIO		
Bakelite-QRS-147	P	0.27	Polyester	Bakelite Corp.	8
C-11 Copolymer	R	0.00	Modified Styrene/Rubber	Lionel Co. Inc.	10
Ciba No. 502-951 hardener	P	10.18	Epoxy	Ciba Inc.	3
Epon 828, with D	P	10.38	Epoxy	Shell Chem. Corp.	3
Hip-185a	P	0.00_s	Modified Styrene	Koppers Chem. Co.	10
Insulating Compound 150-DS-88	P	4.66_s	Aluminum Silicate Rubber	B.F. Goodrich Chemical Co.	13
Laminac No. 4116	A	0.00	Polyester/Styrene	American Cyanamid Co.	8
Paraplex P-13	P	0.30	Polyester	Rohm & Haas Co.	8
Paraplex P-43	P	0.00	Polyester	Rohm & Haas Co.	8
XP-203 Rubber Composition	R	0.00	Neoprene	Picatinny Arsenal	11
			OGK		
Buna-N (O-rings)	R	1.10	Butadiene/Acrylonitrile	Castle Rubber Co.	11
Ethyl Cellulose Lacquer	P	0.62	Ethyl Cellulose	Picatinny Arsenal	2
Pettman Cement	C	5.26_s	PO-DA-28-017-ORD-1331	Lastings Products Co.	13
Permatex No. 2	S	0.94_s	Gasket Sealing Comp.	Permatex Co. Inc.	13
Plasticktrim	R	1.12_s	Reclaimed Rubber	R.D. Werner Co. Inc.	11
QRS-147	P	0.00	Polyester	Bakelite Corp.	8
Silicone Rubber	R	0.00	Silicone Rubber	General Electric Co.	11
XP-218	R	0.94	Elastomer	Picatinny Arsenal	11
			PBX		
Amberlac No. 292	C	0.00	Polyester	Rohm & Haas Co.	8
Bakelite No. 30786	P	0.00	Vinolite	Bakelite Corp.	12

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
E.C. 776	A	0.87	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. 833	A	0.41	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. 847	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Furane X-2	A	0.00	Furfural/formaldehyde	Furane Plastics, Inc.	5
Tennessee Eastman No. 910	A	0.00	Acrylate	Tennessee Eastman	1
Tremco	R	0.14	Rubber Base	Tremco Mfg. Co.	11
			Pentolite		
Acoustic Cement	A	0.00	Oleoresinous Base	Armstrong Cork Co.	13
Armstrong J-1140-B	A	0.00	Phenol/formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140-D	R	0.00	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140-E	A	0.00	Cumar C-6	Armstrong Cork Co.	13
Atlas Glass Filled Polyester	P	0.00	Polyester	Atlas Powder Co.	8
Casco Flexible Cement	A	0.00	Miscellaneous	The Borden Co.	13
Cycleweld C-14	A	8.58	Epoxy Polysulfide	Cycleweld Cement Prod.	3
G.E. No. 12487	R	0.00	Woodflour filled Phenolic/ Nitrile Rubber	General Electric Co.	7
G.E. No. 12840	P	0.00	Phenolic	General Electric Co.	7
Hysol No. 6020	A	3.12	Epoxy	Houghton Laboratories Inc.	3
Panelyte PC No. 41263	P	0.00 s	Acrylonitrile Copolymer	St. Regis Sales Corp.	11
Paraplex P-43	P	0.00 s	Polyester	Rohm & Haas Co.	8
Silicone Grease-H	M	0.04	Soft film silicone	General Electric Co.	9
Silicone Grease-G	M	4.22	Soft film silicone	General Electric Co.	9
Silicone Grease-A 20044	M	0.08	Soft film silicone	General Electric Co.	9
Silicone Grease A-20046	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease 372-72-539	M	0.29	Soft film silicone	General Electric Co.	9
Silicone Grease XC-4272	M	0.07	Soft film silicone	Dow Corning Corp.	9
Silicone Grease XC-4282	M	0.60	Soft film silicone	Dow Corning Corp.	9
Silicone Grease XC-5012	M	0.00	Soft film silicone	Dow Corning Corp.	9
Silicone Grease XCT-4043	M	0.05	Soft film silicone	Dow Corning Corp.	9
Silicone Electro-lube-Pres-o-Valve	M	0.01	Soft film silicone	General Electric Co.	9
Varglas Silicone Tubing	R	0.00	Silicone Rubber	Firestone Tire & Rubber Co.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			PETN		
Acoustic Cement	A	0.02_s	Oleoresinous Base	Armstrong Cork Co.	13
Aluminum Varnish	C	0.00	Spec.-AXS-1680	Picatinny Arsenal	13
Armstrong J-1140-B	A	0.00	Phenol/formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140-D	R	0.00	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140-E	A	0.00	Cumar C-6	Armstrong Cork Co.	13
Bakelite No. 18793	P	0.88	Resin Accelerator	Bakelite Co.	3
Bakelite No. 18795	P	0.88	Epoxy	Bakelite Co.	3
Bakelite No. XV-1657	C	0.00	Phenol-formaldehyde	Bakelite Co.	7
Bakelite VF-612	C	0.00	Spec. AXS-1680 Phenol-formaldehyde	Bakelite Co.	7
Casco Flexible Cement	A	0.00	Miscellaneous	The Borden Co.	13
Cellulose Acetate/Dibutyl Phthalate	P	0.44	Cellulosic	Chemaco Corp.	2
Durite HR-340	P	0.09	Phenolic Resin	The Borden Co.	7
E.C. E-59-MS	P	0.29	Ethyl Cellulose	Chemaco Corp.	2
E.C. E-12-S6	P	0.33	Ethyl Cellulose	Chemaco Corp.	2
E.C. No. 776	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 833	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 847	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Furane X-2	A	0.00	Furane	Furane Plastics, Inc.	5
Geon No. 1911	P	0.26	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Geon No. 2046	P	0.27	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Lucite HM-130	P	0.38	Polymethyl-methacrylate	E.I. du Pont de Nemours & Co., Inc.	1
Palmer Phenolic Resin No. 752	P	0.00	Phenolic	Palmer Products Co.	7
Pamplex P-43	P	0.00_s	Polyester	Rohm & Haas Co.	8
Phenol-Formaldehyde Varnish	P	0.00	Spec. AXS-1680	Picatinny Arsenal	7
Plastacele	P	0.32	Cellulose Acetate	E.I. du Pont de Nemours & Co., Inc.	2
Pliobond No. 20	A	0.05	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Tenite II 270-A-S2	P	0.82	Cellulose Acetate Butyrate	Eastman Kodak Co. Inc.	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Tenite II 203-A-S2	P	0.37	Cellulose Acetate Butyrate	Eastman Kodak Co. Inc.	2
Thiokol LP-2	R	0.10	Polysulfide	Thickol Chemical Corp.	11
"Titeseal Brush-On"	S	1.05	Gasket Cement	Radiator Specialty Co.	13
Tremco	R	0.05	Polysulfide	Tremco Mfg. Co.	11
VC-1947	P	0.33	Polyvinyl Chloride Acetate	Bakelite Corp.	12
Vinylite-PA-30786	P	0.00	Polyvinyl Chloride	Bakelite Corp.	12
Zapon-3-291-A	C	0.00	Phenol-formaldehyde/ Aluminum varnish	Atlas Powder Co.	7
			Picratol		
E.C. No. 981	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg Co.	11
E.C. No. 1055	S	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1126	S	0.00	Oil Resistant Elastomer	Minnesota Mining & Mfg. Co.	11
E.C. No. 1202	S	0.00	Oil Soluble Elastomer	Minnesota Mining & Mfg. Co.	11
E.C. No. 1365	S	0.00	Butyl Base Elastomer	Minnesota Mining & Mfg. Co.	11
Glidden Cushioning Material	P	0.00	Miscellaneous	Glidden Co.	13
Glidden Inert Sealer No. 589	S	0.00	50% hydrocarbon; 50% glycerol ester rosin	Glidden Co.	13
Glidden Inert Sealer No. 590	S	0.00	100% Para-Coumarone Indene	Glidden Co.	13
Glidden Inert Sealer No. 591	S	0.00	50% glycerol ester rosin; 50% Para-Coumarone Indene	Glidden Co.	13
Glidden Inert Sealer No. 592	S	3.00	100% ester dehydrogenated rosin	Glidden Co.	13
Glidden Inert Sealer No. 598	S	0.00	Glycerol ester of rosin	Glidden Co.	13
Panelyte Fc No. 41263	P	0.00_s	Acrylonitrile Copolymer	St. Regis Sales Corp.	11
Presstite No. 144-41	R	0.00	Asphalt Rubber	Presstite E[illegible]ering Co.	13
Presstite No. 155-6	A	0.00	Asphalt Rubber	Presstite Engineering Co.	13
Presstite No. 218	P	0.42_s	Aerodynamic Smoothing Cmpd.	Presstite Engineering Co.	13

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Silicone Grease-G	M	0.51	Soft Silicone film	General Electric Co.	9
Silicone Grease-H	M	0.00	Soft Silicone film	General Electric Co.	9
Silicone Grease No. A-20044	M	0.00	Soft Silicone film	General Electric Co.	9
Silicone Grease No. A-20046	M	0.00	Soft Silicone film	General Electric Co.	9
Silicone Grease 372-72-539	M	0.00	Soft Silicone film	General Electric Co.	9
Silicone Grease No. XC-4272	M	0.00	Soft Silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-4282	M	0.00	Soft Silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-5012	M	0.00	Soft Silicone film	Dow Corning Corp.	9
Silicone Grease No. XCT-4043	M	0.08	Soft Silicone film	Dow Corning Corp.	9
			Primer Mix-NOL-130		
Acid Proof Black Paint	C	No Exp.	JAN-P-450	Glidden Co.	13
Cycopol-S102-5	C	No Exp.	Polyester	American Cyanamid Co.	8
Durite HR-340	P	No Exp.	Phenolic	The Borden Co.	7
Green Enamel	C	No Exp.	MIL-E-10687	American Cyanamid Co.	2
Green Lacquer	C	No Exp.	MIL-L-10287	American Cyanamid Co.	2
Hypolon S2	P	No Exp.	Chlorosulfonate Polyethylene	E.I. du Pont de Nemours & Co., Inc.	4
Marrinol Metal Laminate	P	No Exp.	Polyvinyl Chloride		12
Mylar Tape	P	No Exp.	Polyethylene Terephthalate	E.I. du Pont de Nemours & Co., Inc.	8
Red Enamel	C	No Exp.	MIL-E-10687	American Cyanamid Co.	2
Red Lacquer	C	No Exp.	MIL-L-10287	American Cyanamid Co.	2
S-50 Polymer	P	No Exp.	Styrenated Isobutylene	Enjay Co. Inc.	10
			Primer Mix PA-100		
Acid Proof Black Paint	C	No Exp.	JAN-P-450	Glidden Co.	13
Cycopol S102-5	C	No Exp.	Polyester	American Cyanamid Co.	8
Green Enamel	C	No Exp.	MIL-E-10687	American Cyanamid Co.	2
Green Lacquer	C	No Exp.	MIL-L-10287	American Cyanamid Co.	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Hypolon S2	P	No Exp.	Chlorosulfonated Polyethylene	E.I. du Pont de Nemours & Co., Inc.	4
Marinol Metal Laminate	P	No Exp.	Aluminum backed PVC		12
Red Enamel	C	No Exp.	MIL-E-10687	American Cyanamid Co.	2
Red Lacquer	C	No Exp.	MIL-L-10287	American Cyanamid Co.	2
S-50 Polymer	P	No Exp.	Styrenated Isobutylene	Enjay Co. Inc.	10
Primer-Mix FA 70					
Cellophane No. 300 PC	P	No Exp.	Regenerated cellulose	E.I. du Pont de Nemours Inc.	2
Cycleweld C-14	P	No Exp.	Epoxy Resin	Cycleweld Cement Products	3
Cycopol S-102-5	P	No Exp.	Polyester	American Cyanamid	8
RDX					
Acoustic Cement	A	0.00	Oleoresinous Base	Armstrong Cork Co.	13
Acid Proof Black Paint	C	0.25 s	JAN-P-450	Glidden Co.	13
Amberlite PR-115	A	0.00	Resorcinol/formaldehyde	Rohm & Haas Co.	7
Armstrong A-4	A	5.17	Epoxy	Armstrong Products Co.	3
Armstrong J-1140-B	A	0.00	Phenol-formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140-D	R	0.00	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140-E	A	0.00	Cumar C-6	Armstrong Cork Co.	13
Bakelite No. 261	P	0.35	Phenolic	Bakelite Corp.	7
Bakelite BRR-18793	P	0.00	Resin Accelerator	Bakelite Corp.	3
Bakelite BRR-18795	P	0.00	Epoxy	Bakelite Corp.	3
Casco Flexible Cement	A	0.00	Miscellaneous	The Borden Co.	13
Cellulose Acetate/Dibutylphthalate	P	0.22	Cellulosic	Chemaco Corp.	2
Cerex Yellow	P	0.00 s	Polystyrene	Monsanto Chemical Co.	10
Coverlac-Orange	C	0.00	Polyvinyl Chloride	Spraylax Corp.	12
Cycopol-S102-5	C	0.00	Polyester	American Cyanamid Co.	8
Dex-o-Tex	R	0.00	Neoprene Conductive	Crossfield Products	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Durite HR-340	P	1.06	Phenolic Resin	The Borden Co.	7
Dylan-KPD-190	P	0.00	Polyethylene	Koppers Co., Inc.	4
Dylene No. 100	P	0.00	Polystyrene	Koppers Co., Inc.	10
Epon No. 828	P	0.00	Epoxy	Shell Chemical Corp.	3
E.C. No. 373	A	0.00	Reclaimed Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 801	S	0.47	Oil Resistant Elastomer	Minnesota Mining & Mfg. Co.	11
E.C. No. 847	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1022	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
F.M. 10001	P	0.00_s	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Geon No. 1911	P	0.27	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Geon No. 2046	P	0.23	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Glaskyd No. 1901	P	0.00	Polyester	Olin Industries	8
Green Enamel	C	0.15	MIL-E-10687 Cellulosic	American Cyanamid	2
Green Lacquer	C	0.00	MIL-L-10287 Cellulosic	American Cyanamid	2
Hypalon S-2	C	0.00	Chlorosulfonated polyethylene	E.I. du Pont de Nemours & Co., Inc.	11
Laminac No. 4116	A	0.00	Polyester	American Cyanamid Co.	8
Laminac No. 4134	A	0.00	Polyester/Styrene	American Cyanamid Co.	8
Lucite HM-130	P	0.31	Polymethyl-methacrylate	E.I. du Pont de Nemours & Co., Inc.	1
Lustrex-Clear	P	0.00_s	Polystyrene	Monsanto Chem. Co.	10
Lustrex LT-373	P	0.00_s	Polystyrene	Monsanto Chem. Co.	10
Masters Compound	P	10-36	Miscellaneous	James K. Harbinson & Co.	13
Marrinol Metal Laminate	P	0.00	Aluminum backed PVC		12
Nylon No. 6501	P	0.56	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Paraplex P-43	A	0.00	Polyester	Rohm & Haas Co.	8
Paraplex P-13	A	0.00	Polyester	Rohm & Haas Co.	8
Plaskon No. 951	P	0.00	Polyester	Allied Chemical	8
Plaskon Alkyd No. 442	P	0.00	Polyester	Libbey Owens Ford Glass Co.	8
Plastecele	P	0.43	Cellulose Acetate	E.I. du Pont de Nemours & Co., Inc.	2
Plastisol	P	—	Polyvinyl Acetate	Picatinny Arsenal	12

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Pliobond No. 20	A	3.57	Synthetic elastomer	Goodyear Tire & Rubber Co.	11
Pliobond No. 30	A	3.22	Synthetic elastomer	Goodyear Tire & Rubber Co.	11
Presstite No. 261	A	0.25		Presstite Engineering Co.	13
Presstite No. 261-6	A	0.56		Presstite Engineering Co.	13
Presstite No. 271	A	0.21		Presstite Engineering Co.	13
Prufcoat	P	0.00	Polyvinyl Chloride	Prufcoat Inc.	12
QRS-147	P	0.00	Polyester	Bakelite Corp.	8
Red Enamel	C	0.00	Spec. MIL-E-10687 Cellulosic	American Cyanamid Co.	2
Red Lacquer	C	0.00	Spec. MIL-L-10287 Cellulosic	American Cyanamid Co.	2
Rubber Composition No. 32S-453	R	0.00	GRS-Rubber	Ohio Rubber Co.	11
S-50 Polymer	P	0.00	Styrenated/Isobutylene	Enjay Co. Inc.	10
Silicone Grease-G	M	0.17	Soft silicone film	General Electric Co.	9
Silicone Grease-H	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. A-20044	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. A-20046	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. 372-72-539	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. XC-4272	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-4282	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-5012	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XCT-4043	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease Electro-lube-Pres-o-Valve	M	0.00	Soft filicone film	General Electric Co.	9
Styrene Monomer No. 363	P	No Exp.	Polymeric styrene		10
Tenite II-270-A-S2	P	0.28	Cellulose Acetate Butyrate	Eastman Kodak Co. Inc.	2
Tenite II-203-S2	P	0.25	Cellulose Acetate Butyrate	Eastman Kodak Co. Inc.	2
Thiokol LP-2	A	0.27	Polysulfide elastomer	Thiokol Chemical Corp.	11
VG-1947	P	0.34	Polyvinyl Chloride Acetate	Bakelite Co.	12
Vinylite Pipe Marker	C	0.00	Polyvinyl Chloride	Picatinny Arsenal	12
Vistanex B-120-Gel	S	0.00	Miscellaneous		13
Zapon No. 2360	C	0.00	Cellulose Nitrate	Brevolite Co.	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			Squib Mix		
Acryloid B-72	A	0.00_s	Polymethyl methacrylate	Rohm & Haas Co.	1
Polyethylene Grade P-1000 PM20	P	0.00	Polyethylene	E.I. du Pont de Nemours & Co., Inc.	4
Vinyl-Acrylate Mixture	P	1.25_s	Vinyl-Chloride Acetate	Bakelite Corp.	12
Zapon No. 3-291-A	C	1.80	Cellulose Nitrate	Brevolite Co.	2
			Swiss Propellant		
Hysol No. 6020	A	10.17_s	Epoxy	Houghton Laboratories	3
QRS-147	P	0.40_s	Polyester	Bakelite Co.	8
			RDX-Hystine		
E.C. No. 847	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 531	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
			Standard Primer Mix		
Marrinol Metal Laminate	P	No Exp.	Aluminum backed PVC		12
			T-2		
Allite	P	0.08	Polyester	Pittsburgh Glass Co.	8
Armstrong A-1	P	6.89_s	Epoxy	Armstrong Products Co.	3
Belden stock No. 8943	C	0.00	Cellulose Nitrate Acetate		2
CMC	P	0.00	Na Carboxymethyl Cellulose	Chemaco Corp.	2
DE-3422	P	0.00	Polyethylene	Bakelite Co.	4
Dextrin	A	0.00_s	Spec JAN-D-232, Type I	National Starch Products, Inc.	2
E.C. No. 770	A	0.00_s	Reclaimed Rubber	Minnesota Mining & Mfg. Co.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Ethyl Cellulose No. 346	A	1.33	Ethyl Cellulose	Chemaco Corp.	2
Formvar "E"	P	0.00	Polyvinyl formvar	Shawinigan Resins Ltd.	12
Furane X-2	A	0.90	Furfural/formaldehyde	Furance Plastics, Inc.	5
GR-I (XP-143)	R	0.00	Polyisobutylene-isoprene	Office of Reserve Rubber	11
GR-M (XP-145)	R	0.00	2-Chloro-1, 3-Butadiene	E.I. du Pont de Nemours & Co., Inc.	11
GR-S (XP-142)	R	3.46	Butadiene/Styrene	E.I. du Pont de Nemours & Co., Inc.	11
Geon No. 404	P	0.00	Polyvinyl Chloride	B.F. Goodrich Chemical Co.	12
Hysol No. 6000	A	0.00	Epoxy	Houghton Laboratories	3
Kel F	P	0.00	Polytrifluoro Chloroethylene	M.W. Kellogg Co.	4
Kopper's No. 185A	P	0.00 s	Polystyrene	Koppers Chem. Co.	10
Kralastic No. 2183-6	P	0.00	Polystyrene	Naugatuck Chem. Co.	10
Kralastic BM-2146	P	0.00	Polystyrene	Naugatuck Chem. Co.	10
Laminac No. 4116	A	0.00	Polyester	American Cyanamid Co.	8
Laminac No. 4125	A	0.00	Polyester	American Cyanamid Co.	8
Laminac No. 4134	A	0.00	Polyester	American Cyanamid Co.	8
Lustrex Lt No. 373	A	3.05	Polystyrene	Monsanto Chemical Corp.	10
Metal Sealing Cmpd. No. 1380 Red	S	0.00 s	Miscellaneous	E.I. du Pont de Nemours & Co., Inc.	13
Monocork No. 100	R	0.99	Rubber Base	Armstrong Cork	11
Monocork No. 500	R	0.00	Neoprene Base	Armstrong Cork	11
MR-25c	P	0.00	Polyester	Celanese Corp. of America	8
Nylon FM No. 1	P	0.24	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Nylon FM No. 3	P	0.69	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Paraplex P-13	A	0.00	Polyester	Rohm & Haas Co.	8
Paraplex P-43	A	0.00	Polyester	Rohm & Haas Co.	8
Penacolite G-1215A	P	0.00	Phenol formaldehyde	Koppers Chem. Co.	7
Permatex No. 2	P	0.00	Gasket Sealing Composition	Permatex Co. Inc.	13
Pettman Cement	C	4.14 s	Miscellaneous	Lastings Product Co.	13
Phenol-Formaldehyde No. 2611	P	0.00 s	Phenol-Formaldehyde	Catalin Corp.	7
Plasticktrim	R	0.07	Reclaimed Rubber	R.D. Werner Co. Inc.	11
Piexene "M"	P	0.00 s	Styrene Acrylonitrile	Rohm & Haas	10
Pliobond No. 20	A	2.18	Phenol/Formaldehyde, Synthetic Rubber	Goodyear Tire & Rubber Co.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Pliobond No. 30	A	2.18_s	Phenol/Formaldehyde/ Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Polyethylene	P	0.00_s	Polyethylene	Picatinny Arsenal	4
Polyvinyl Alcohol A	P	0.42	Vinylite	E.I. du Pont de Nemours & Co., Inc.	12
Polyvinyl Alcohol B	P	0.00	Vinylite	Resistoflex Corp.	12
Polyvinyl Formal	P	0.00	Polyvinyl Formal	Picatinny Arsenal	12
RD-51-24	P	0.00	Polystyrene	Bakelite	10
Rubber Comp. XP-101	R	0.07_s	GRS Rubber	Picatinny Arsenal	11
S-50 Polymer	P	0.00	Styrenated Isobutylene	Enjay Co., Inc.	10
S-60 Copolymer	P	0.00_s	Styrene/isobutylene	Enjay Co., Inc.	10
Saran (Type M film)	P	0.00	Vinylidene Chloride Resin	The Dow Chemical Co.	12
Selectron No. 5003	P	0.00	Polyester	Pittsburgh Plate Glass Co.	8
Silastic No. 150	R	0.00	Silicone Rubber	Dow Corning Corp.	11
Silastic No. 180	R	0.00	Silicone Rubber	Dow Corning Corp.	11
Styrene	P	0.00	Polystyrene	Picatinny Arsenal	10
Styron No. 666	P	0.00	Polystyrene	Dow Corning Corp.	10
TVA	P	0.00_s	Cellulose Acetate	Monsanto Chem. Co.	2
Teflon	P	0.00	Polytetra fluoroethylene	E.I. du Pont de Nemours & Co., Inc.	4
Thiokol 1605 AH, 3000; 3600; 1620	A	0.00	Polysulfide Rubber	Thiokol Chemical Corp.	11
Vinyl Composition	P	0.00_s	Polyvinyl Chloride	Aircraft Marine Products Inc.	12
VU-1310	P	0.00_s	Polyvinyl Chloride	Bakelite Co.	12

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Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Bakelite QRS-147	P	0.00	Polyester	Bakelite Co.	5
Black Polystyrene	P	0.00_s	Polystyrene	Shwat & Frank Co.	10
C-11 Copolymer	P		Polystyrene/Rubber	Lionel Co.	10
Conductoplast	C	5.70 0.66	Liquid Resin Cement	Atlas Mineral Products	13
Ethyl Cellulose Lacquer	C	0.04	Spec. 3-198	Picatinny Arsenal	2
Laminac No. 4116	A	0.00	Polyester	American Cyanamid Co.	8

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Luting Compound 12126A	P	0.00	Vinyl Base	Thompson & Co.	12
Metal Sealing Cmpd. 1380 Red	S	0.00_s	Polymer Solution	E.I. du Pont de Nemours & Co., Inc.	13
Neoprene GRM-10	R	6.12	2-Chloro-Butadiene 1,3	E.I. du Pont de Nemours & Co., Inc.	11
Pettman Cement	C	5.47_s	PO-DA-28-017-ORD-1331	Lastings Prod. Co.	13
Permatex No. 2	P	0.00_s	Gasket Sealing Composition	Permatex Co. Inc.	13
Plasticktrim	R	0.64_s	Reclaimed Rubber	R.D. Werner Co. Inc.	11
Polyethylene	P	0.00_s	Polyethylene	Polyplastex United, Inc.	4
Polyvinyl chloride tubes	P	0.54_s	Polyvinyl chloride	Suprenant Mfg. Co.	12
Polyvinyl	P	0.00	Vinylite	Picatinny Arsenal	12
Presstite No. 218	A	6.49	Aerodynamic Smoothing Cmpd.	Presstite Engineering Co.	13
Polystyrene, straight	P	0.05	Polystyrene	Crescent Plastic Co.	10
Royal Cement No. 6159	C	0.36_s	Miscellaneous	U.S. Rubber Co.	13
S-50 Polymer	P	0.00_s	Styrenated/Isobutylene	Enjay Co., Inc.	10
Scotch Tape No. 100	S	0.00	Regenerated Cellulose with Adhesive backing	Minnesota Mining & Mfg. Co.	2
Shellac/Bronze Composition	C	7.64	White Shellac/Bronze pwd./ Alcohol	Picatinny Arsenal	13
Styron No. 666	P	0.36_s	Polystyrene	Dow Corning Corp.	10
Vinyl Acrylic-VAGH	P	0.00	Vinylite	Bakelite Corp.	12
XP-202	R	0.00	Synthetic Rubber	Picatinny Arsenal	11
XP-203	R	0.00	Synthetic Rubber	Picatinny Arsenal	11
XP-206	R	0.00	Synthetic Rubber	Picatinny Arsenal	11
			T-8		
Allite	P	0.00_s	Polyester	Pittsburgh Plate Glass Co.	8
Armstrong A-1	A	7.96_s	Epoxy	Armstrong Products	3
Araldite AN-111	A	8.43	Epoxy	Ciba Company	3
CMC	P	0.74	Carboxymethyl Cellulose	Chemaco Corp.	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
DE-3422 Polyethylene	P	0.00	Polyethylene	Bakelite Corp.	4
Ethyl Cellulose No. 346	P	1.49_s	Cellulosic		2
Furane X-2	A	7.82	Furfural Formaldehyde	Furane Plastics, Inc.	5
Formvar "E"	P	0.00_s	Polyvinyl Formvar	Shawinigan Resins Ltd.	12
GR-1 (XP-143)	R	0.00_s	Polyisobutylene-isoprene	Office of Reserve Rubber	11
GR-M (XP-145)	R	0.00_s	2-Chloro-1,3-Butadiene	E.I. du Pont de Nemours & Co., Inc.	11
GR-S (XP-142)	R	0.00_s	Butadiene/Styrene	E.I. du Pont de Nemours & Co., Inc.	11
Geon No. 404	P	0.00_s	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Hysol No. 6000	P	0.00_s	Epoxy	Houghton Labs	3
KEL-F	P	0.00_s	Polytrifluorochloroethylene	M.W. Kellogg Co.	4
Laminac No. 4116	P	0.00_s	Polyester	American Cyanamid Co.	8
Laminac No. 4125	P	0.00_s	Polyester	American Cyanamid Co.	8
Laminac No. 4134	A	0.11_s	Polyester/Styrene	American Cyanamid Co.	8
Lustrex Lt. 373	P	0.41_s	Modified Polystyrene	Monsanto Chem. Co.	10
MR-25-C	P	0.00_s	Polyester	Celanese Corp. of America	8
Monocork No. 100	R	1.98_s	Rubber Base	Armstrong Cork Co.	11
Monocork No. 500	R	0.60_s	Neoprene	Armstrong Cork Co.	11
Nylon FM-1	P	0.00	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Nylon FM-3	P	0.46_s	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Paraplex P-13	P	0.00_s	Polyester	Rohm & Haas Co.	8
Paraplex P-43	P	0.00_s	Polyester	Rohm & Haas Co.	8
Penacolite G-1215A	P	0.00_s	Phenol-formaldehyde	Koppers Chem. Co.	7
Permatex No. 2	S	0.00_s	Gasket Sealing Comp.	Permatex Co. Inc.	13
Pettman Cement	C	8.55_s	PO-DA-28-017-ORD-1331	Lastings Prod. Co.	13
Phenol Formaldehyde No. 2611	P	0.00	Cast Resin	Catlin Corp.	7
Plasticktrim	R	0.68_s	Reclaimed Rubber	R.D. Werner Co. Inc.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Plexene M	P	0.00_s	Styrene/Acrylonitrile	Rohm & Haas Co.	10
Pliobond No. 20	A	3.72_s	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Pliobond/Thiokol	R	3.34_s	Rubber Copolymers	Picatinny Arsenal	11
Polyvinyl Alcohol A	P	0.72_s	Vinylite	E.I. du Pont de Nemours & Co., Inc.	12
Polyvinyl Alcohol B	P	0.01_s	Vinylite	Resistoflex Corp.	12
Polyvinyl Formal	P	0.00	Polyvinyl-Formal	Picatinny Arsenal	12
S-50 Polymer	P	0.00_s	Styrenated Isobutylene	Enjay Co., Inc.	10
Saran (Type M film)	P	0.00	Vinylidene Chloride Resin	The Dow Chemical Co.	12
Selectron No. 5003	P	0.20_s	Polyester	Pittsburgh Plate Glass Co.	3
Silastic No. 150	P	0.00_s	Silicone Polymer	Dow Corning Corp.	11
Silastic No. 180	P	0.00_s	Silicone Polymer	Dow Corning Corp.	11
Styrene Acrylonitrile	R	0.00	Acrylonitrile		11
Styrene Isobutylene	R	0.00	Isobutylene Rubber		11
Styron No. 666	P	0.00_s	Polystyrene	Dow Chemical Co.	10
Teflon	P	0.00_s	Polytetrafluoroethylene	E.I. du Pont de Nemours	4
Thiokol-LP-2	R	0.74	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 1605 A.H.	R	0.00_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 1620 A.H.	R	0.13_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 3000 F.A.	R	0.18_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 3000 PRI	R	0.38_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 3000 ST	R	0.00_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol No. 3600 ST	R	0.00_s	Polysulfide Rubber	Thiokol Chemical Corp.	11
					13
			T-9		
Cellulose Acetate/Dibutyl phthalate		1.53	Cellulosic	Chemaco Corp.	2
E-59-MS		1.64	Cellulosic	Chemaco Corp.	2

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
E-12-S6	P	2.31	Cellulosic	Chemaco Corp.	2
Geon No. 1911	P	1.68	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Geon No. 2046	P	2.29	Polyvinyl Chloride	B.F. Goodrich Chem. Co.	12
Lucite HM-130	P	2.22	Polymethyl/methacrylate	E.I. du Pont de Nemours & Co., Inc.	1
Permatex No. 2	S	0.00_s	Gasket Sealing Composition	Permatex Co. Inc.	13
Pe[illegible]man Cement	C	0.00_s	PO-DA-28-017-ORD-1331	Lastings Prod. Co.	13
Ple[illegible]acele	P	0.27	Cellulose Acetate	E.I. du Pont de Nemours & Co., Inc.	2
Plasticktrim	R	0.00_s	Reclaimed Rubber	R.D. Werner Co. Inc.	11
Tenite II 270A S2	P	1.43	Cellulose Acetate Butyrate	Eastman Kodak Co.	2
Tenite II 203A S2	P	1.64	Cellulose Acetate Butyrate	Eastman Kodak Co.	2
VG-1947 Natural	P	2.04	Polyvinyl Chloride Acetate	Bakelite Corp.	12
			T-16		
Durez 1905	P	1.68	Phenolic	Durez Plastics & Chem. Co.	7
E.C. No. 826	A	2.71	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 847	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1236	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
Ethyl Cellulose	C	1.18	Ethyl Cellulose	Minnesota Mining & Mfg. Co.	2
Neoprene No. 817	R	0.66	Polysulfide Rubber	E.I. du Pont de Nemours & Co., Inc.	11
O-Rings-Buna N	R	2.36_s	Butadiene Acrylonitrile	Castle Rubber Co.	11
QRS-147	P	0.00_s	Polyester	Bakelite Corp.	8
Rubber Stoppers No. 7	R	0.02_s	Synthetic Rubber	Picatinny Arsenal Storeroom	11
Silica Gell		2.76	Miscellaneous		13
Selectron No. 5003	P	0.56_s	Polyester	Pittsburgh Plate Glass Co.	8
Vinylite Pipe Marker	P	0.00	Polyvinyl Chloride	Picatinny Arsenal	12
			T-18		
Cellulose Nitrate film	P	0.22	Cellulose Nitrate	Selectronic Corp.	2
Corfoam No. 114	P	0.00	Phenolic foam	Rezolyn, Los Angeles	7
Fortisan	P	7.44	Acetate Rayon	Celanese Corp. of America	2
Mylar Tape	P	0.00	Polyethylene/Terephthalate	E.I. du Pont de Nemours & Co., Inc.	8
Polyethylene film	P	0.00_s	Polyethylene	Embart Mfg. Co.	4

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
			T-19		
Araldite CN-503	A	0.00	Epoxy	Ciba Chem. Co.	3
Araldite AN-100	A	7.85	Epoxy	Ciba Chem. Co.	3
Araldite E-107	A	0.00 0.13	Epoxy	Ciba Chem. Co.	3
Armstrong-N-171	P	s	Synthetic Rubber	Armstrong Cork Co.	11
Durez 1905	P	0.00	Phenolic Resin	Durez Plastics & Chem. Inc.	7
Ethyl Cellulose Lacquer	C	0.29	Spec. 3-198	Picatinny Arsenal	2
Epon VI	A	7.56	Epoxy	Shell Oil Co.	3
Phenolic Resin No. 9594	P	s	Phenolic	Catalin Corp.	7
Vibraglas	P	1.86	Phenolic	Glass Cushioning Eng. Co.	7
			T-28		
Asphalt Asbestos	A	5.57	MIL-C-13212	Plymouth Industrial	13
Cellulose Nitrate Lacquer	C	0.00	Cellulosic		2
Synvarite-PNL-12-N	P	0.54_s	Phenolic-woodflour filled	Synvar Corporation	7
			T-131		
Epon 828/Laminated fiberglas	P	4.49_s	Epoxy modification	Shell Chemical Corp.	3
Laminated fiberglas	P	0.00^s	Polyester	Glass Cushioning Engineering Co.	8
			T-31		
Cellulose Acetate	P	0.00	Cellulosic	B.F. Goodrich Chem. Co.	2
			Tetryl		
Acid Proof Black Paint	C	1.63_s	JAN-P-450	Glidden Co.	13
Acoustic Cement	A	2.22	Oleoresinous Base	Armstrong Cork Co.	13
Acrylated Alkyd MF-881	C	0.00	Polyester	Aberdeen Proving Ground	8
Acrylic MF-875	A	0.00	Acrylate	Aberdeen Proving Ground	1
Acryloid B-72	C	0.00_s	Polymethyl methacrylate	Rohm & Haas Co.	1

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Alvar	P	0.04	Polyvinyl Acetal	Shawinigan Co. Inc.	12
Amberlac No. 292	C	0.50	Polyester	Rohm & Haas Co.	8
Araldite AN-111	P	0.00_s	Epoxy	Ciba Company Inc.	3
Armstrong A-6	P	0.60	Epoxy	Armstrong Products Co.	3
Armstrong N-111	A	1.16_s	Synthetic Rubber	Armstrong Cork Co.	11
Armstrong N-171	A	1.33	Synthetic Rubber	Armstrong Cork Co.	11
Armstrong J-1162	A	0.17		Armstrong Cork Co.	13
Bakelite BRR-18795	P	6.53	Epoxy	Bakelite Corp.	3
Bakelite QRS-136	P	0.23	Polyester	Bakelite Corp.	8
Bakelite QRS-147	P	0.00_s	Polyester	Bakelite Corp.	8
C-11 Copolymer	P	0.00_s	Polystyrene/Rubber	Lionel Co. Inc.	10
Bartolon	A	0.54_s	Asphaltic	Plymouth Ind. Prod.	13
Butyl Rubber 5N-259	R	0.00	Butyl Rubber	Ohio Rubber Co.	11
Ca-Plugs	P	0.00_s	Polyethylene	Protective Closure Co. Inc.	4
Chlorinated Paraffin MF 871	P	0.00	Chlorinated Hydrocarbon	Aberdeen Proving Ground	13
Clevelon	C	0.10_s	Asphaltic	Plymouth Industrial Prod.	13
Coumarone Indene	C	0.00	Coumarone - Indene Resin	Aberdeen Proving Ground	13
Coverlac - Orange	C	0.00	Polyvinyl Chloride	Spraylat Corp.	12
Cycleweld C-14	A	2.06_s 7-75	Epoxy	Dow Corning Corp.	3
Cycopol-S102-5	C	0.10	Polyester	American Cyanamid Co.	8
Dielectro Tubing	P	0.00	Phenolic-Laminate	Continental Diamond Fibre Co.	7
Dioxime No. 1	R	0.00_s	Butyl Rubber	DeBell and Richardson Inc.	11
Dioxime No. 2	R	0.00_s	Butyl Rubber	DeBell and Richardson Inc.	11
Dow Corning A-4000	A	0.00	Silicone Rubber	Dow Corning Corp.	11
Durite HR-340	P	0.00	Phenolic	The Borden Co.	7
Dylan Red-KPD-190	P	0.00	Polyethylene	Koppers Chem. Co.	4
Epoxy-MF 876	A	0.00	Epoxy	Armstrong Cork Co.	3
Epon 828	P	0.00	Epoxy	Shell Chem. Corp.	3
E.C. No. 711	A	0.46_s	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 776		1.66	Oil Resistant Elastomer	Minnesota Mining & Mfg. Co.	11
E.C. No. 801	C	1.96	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 826	A	2.38_s	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11

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E.C. No. 833	A	0.40	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 847	A	1.86	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 981	S	0.04	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1022	A	0.91	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1055	S	1.15	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1126	S	0.09	Oil Resistant Elastomer	Minnesota Mining & Mfg. Co.	11
E.C. No. 1202	S	0.00	Oil Soluble Elastomer	Minnesota Mining & Mfg. Co.	11
E.C. No. 1236	A	0.25	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1365	S	0.00	Butyl Base	Minnesota Mining & Mfg. Co.	11
FM-10001	P	0.00_s	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Fiberglas Laminated	P	0.00	Polyester	Glass Fibers Inc.	8
Findley's No. 450 Label Weld	A	9.68	Miscellaneous	Upaco-Union Paste Co.	13
Glidden Cushioning Mat.	P	0.04	Miscellaneous	Glidden Co.	13
Green Enamel-MIL-E-10687	C	0.11	Spec. MIL-E-10687 Cellulosic	American Cyanamid Co.	2
Green Lacquer MIL-L-10287	C	0.63	Spec. MIL-10287 Cellulosic	American Cyanamid	2
Gray Glid Iron	P	0.00_s	Polyester	Glidden Co.	8
H-00	C	0.00_s	Polyester	F.E. Schundler & Co.	8
H-35	C	0.00_s	Polyester	F.E. Schundler & Co.	8
Hypolon S-2	C	0.00	Chlorosulfonated Polyethylene	E.I. du Pont de Nemours & Co., Inc.	4
Hysol No. 6020 (Cast form)	A	2.92 10.29	Epoxy	Houghton Laboratories	3
Hycar 2202 I, 10-D.C.	R	0.00	Synthetic Rubber	B.F. Goodrich Chemical Corp.	11
Isolite perstop No. 2112	P	0.00	Polyester	Schenectady Varnish Co.	8
Kralastic 2183-6	P	0.44_s	Rubber Modified Polystyrene	Naugatuck Chem. Co.	10
L-719 Adhesive	A	1.04	Spec. AXS-1472	Upaco-Union Paste Co.	13
Laminac No. 4116	A	0.00	Polyester/Styrene	American Cyanamid Co.	8
Laminac No. 4128	A	0.00	Polyester/Styrene	American Cyanamid Co.	8
Laminac No. 4134	A	0.08	Polyester/Styrene	American Cyanamid Co.	8
Lustrex Lt. 373	P	0.00_s	Polystyrene	Monsanto Chem. Co.	10
M-339 Adhesive	A	1.46	Spec. AXS-1472	Upaco-Union Paste Co.	13
Marrinol Metal Laminate	P	0.00	Polyvinyl Chloride	Rohm & Haas Co.,	12
Master's Metallic Cmpd.	P	10-34	Miscellaneous	Harbinson & Co.	13

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Mylar Tape No. 7300	P	0.00 s	Polyethylene/Terephthalate	Mystic Adhesive Products	8
Neoprene GRM-10	R	1.60 s	Polysulfide Rubber	E.I. du Pont de Nemours & Co., Inc.	11
Paneltye Pc No. 41263	P	0.02 s	Acrylonitrile Copolymer	St. Regis Sales Corp.	11
Phen. Form. Varnish	P	0.00	Phenol. Formaldehyde	Picatinny Arsenal	7
Phenol Formaldehyde Varnish	P	0.00	Phenol-Formaldehyde-AXS-1680	Bakelite Corp.	7
Phthalic Alkyd (Drying Oil)	P	0.63	Polyester	Picatinny Arsenal	8
Plasmount Pre-Set No. 2	A	0.00 s	Miscellaneous	Girder Process	13
Plastic Cement VPX-27	P	0.00	Polystyrene	Victory Plastics	10
Pliobond No. 20	A	2.94	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Pliobond No. 30	A	2.40 s	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
Polyester Fiberglas	P	0.00	Polyester	Crystal Plastics Co.	8
Polyethylene	P	0.00	Polyethylene	Picatinny Arsenal	4
Polystyrene (Modified)	P	0.00	Polystyrene	Picatinny Arsenal	10
Presstite 155.6	A	0.00	Sealant	Presstite Engineering Co.	13
Presstite No. 218	P	0.18	Aerodynamic Smoothing Cmpd	Presstite Engineering Co.	13
Presstite No. 261	A	0.38	Sealant	Presstite Engineering Co.	13
Presstite No. 261-6	A	0.48	Sealant	Presstite Engineering Co.	13
Presstite No. 271	A	7.13	Sealant	Presstite Engineering Co.	13
Presstite No. 144-41	S	0.97	Sealant	Presstite Engineering Co.	13
Purple Lacquer	C	0.00	JAN-L-296-Cellulosic	Picatinny Arsenal	2
Red Enamel	C	0.02	Spec. MIL-E-10687-Cellulosic	American Cyanamid	2
Red Lacquer	C	0.24	Spec. MIL-L-10287-Cellulosic	American Cyanamid	2
Resinox	P	0.20	Phenol-formaldehyde Laminate	Monsanto Chemical Co.	7
Rock Island I-18FE	R	0.39	Synthetic Elastomer	Rock Island Arsenal	11
Royal Industrial Cement No. 6159	C	0.00	Miscellaneous	United States Rubber Co.	13
Rubber Comp. 32S-453	R	0.00	Synthetic Elastomer		11
S-50 Polymer	P	0.00	Styrene/isobutylene		10

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Silicone Grease G	M	0.60	Soft silicone film	General Electric Co.	9
Silicone Grease H	M	0.09	Soft silicone film	General Electric Co.	9
Silicone Grease No. 20044	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. 20046	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. 372-72-539	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. XC-4272	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-4282	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-5012	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XCT-4043	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Electro-lube-Pres-o-Valve	M	0.00	Soft silicone film	General Electric Co.	9
Sponge Rubber/polyethylene	F	0.00	Synthetic Elastomer		11
Styrenated Alkyd	P	4.19	Polyester	Picatinny Arsenal	8
Styron No. 700	P	0.00	Polystyrene	Dow Chemical Co.	10
Sulfur No. 1	R	0.00_s	Rubber Composition	DeBell & Richardson Inc.	11
Sulfur No. 2	R	0.00_s	Rubber Composition	DeBell & Richardson Inc.	11
Thiokol-LP-2 with C-5	R	1.48	Polysulfide Rubber	Thiokol Chemical Corp.	11
Thiokol-LP-3/Epon 828	R	1.86	Polysulfide Rubber	Thiokol Chemical Corp.	11
Titanox TG	C	0.00	Titanium Dioxide	Titanium Alloys Co.	13
Tremco	S	1.06	Rubber Base		11
Tub-Kove Sealing Strip	S	0.41	Vinylite	Keller Products	12
VAGH-271	P	0.00	Polyvinyl Chloride Acetate	Bakelite Corp.	12
Varnish	C	0.07	Spec. AXS-1680		13
Vinyl Butyral MF-891	C	0.00	Vinyl Butyral	Picatinny Arsenal	12
Vinyl Chloride Acetate MF 871	C	0.00	Vinyl Chloride Acetate	Aberdeen Proving Ground	12
Vinyl Chloride Acetate MF 872	C	0.00	Vinyl Chloride Acetate	Aberdeen Proving Ground	12
Vinylite PA-30786	P	0.00	Vinyl Chloride Acetate	Bakelite Corp.	12
Vinylite Pipe Marker		0.00	Polyvinyl Chloride		12
Vinyl Toluene Alkyd-MF 881		0.19	Polyester		8
Vinyl No. 6242	P	0.00	Vinylite		12
World Bestos	A	0.32	Phenolic/Acrylonitrile	World Bestos Corp.	7
XC-271	A	0.00	Silicone Rubber	Dow Corning Corp.	11
Z 2E Hypalon	R	0.00	Rubber	Rock Island Arsenal	11

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Z 40 Silicone	R	0.00	Rubber Composition	Rock Island Arsenal	11
Z 46 Adiprene	R	0.54	Adiprene/Rubber	Rock Island Arsenal	11
Z 47 Hycar 4021	R	0.46		Rock Island Arsenal	11
Zapon No. 2360	C	0.00	Cellulose Nitrate Lacquer	Brevolite Co.	2
Zorlock No. 965		0.00	Miscellaneous	Presstite Engineering Co.	13
			Tetrytol		
Acoustic Cement	A	2.22	Oleoresinous Base	Armstrong Cork Co.	13
Armstrong J-1140B	A	2.43	Phenol-formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140-D	R	3.66	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140-E	P	2.03	Cumar C-6	Armstrong Cork Co.	13
Casco Flexible Cement	A	3.39	Miscellaneous	The Borden Co.	13
Dilectro Tubing	P	0.00	Phenolic Laminate	Continental Diamond Fibers Inc.	7
Epon VI with A	A	3.43	Epoxy	Shell Chemical Corp.	3
FM-10001	P	0.00 s	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Laminated Fiberglas	P	1.46	Polyester	Glass Fibers Inc.	8
Pan Glaze	M	1.41 s	Silicone (Soft film)	Dow Corning Corp.	9
Purple Lacquer	C	5.38	JAN-L-296-Cellulosic	Picatinny Arsenal	2
			TNT		
Acoustic Cement	A	0.00	Oleoresinous Base	Armstrong Cork Co.	13
Acid Proof Black Paint	C	0.02 s	JAN-P-450	Glidden Co.	13
Armstrong J-1140-B	A	0.00 s	Phenol-Formaldehyde	Armstrong Cork Co.	7
Armstrong J-1140-D	R	0.00	Chlorinated Rubber	Armstrong Cork Co.	11
Armstrong J-1140-E	P	0.00	Cumar C-6	Armstrong Cork Co.	13
Bakelite-BM-13080	P	0.04	Phenolic	Bakelite Corp.	7
Bakelite QRS-136	P	0.00	Flexible Polyester	Bakelite Corp.	8
Bakelite QRS-147	P	0.00 s	Rigid Polyester	Bakelite Corp.	8
Bartalon	A	0.24 s	Asphaltic	Plymouth Industrial Prod.	13
Butyl Rubber 5N759	R	0.00	Butyl Rubber	Ohio Rubber Co.	11

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Casco Flexible Cement	A	0.00	Miscellaneous	The Borden Co.	13
Cerex Yellow	P	0.00_s	Polystyrene	Monsanto Chemical Co.	10
Clevelon	A	0.12_s	Asphaltic	Plymouth Industrial Prod.	13
Coverlac Orange	C	0.06	Polyvinyl Chloride	Spraylat Corp.	12
Cycleweld C-14	A	11+	Epoxy Resin	Cycleweld Cement Products	3
Dampcoat Enamel	C	0.00	Rubberized Dampcoat Enamel	Wilbur & Williams Co.	11
Dex-o-tex	R	0.25	Neoprene Rubber	Crossfield Products Co.	11
Dilectro tubing	P	0.05	Phenolic Laminate	Continental Diamond Fibre Co.	7
Dylan-Red	P	0.00	Polyethylene	Koppers Chem. Co.	4
Epon VI	A	1.44	Epoxy	Shell Chem. Corp.	3
Epon 828 with A	A	4.60	Epoxy	Shell Chem. Corp.	3
E.C. No. 711	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 981	A	0.11	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1055	A	0.13	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1126	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1202	A	0.00	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1365	A	0.02	Butyl Base	Minnesota Mining & Mfg. Co.	11
FM-10001	P	0.00_s	Polyamide	E.I. du Pont de Nemours & Co., Inc.	6
Flexseal No. 258	A	0.00	Polyvinyl Butyral	Vibradamp Corp.	12
Formula No. 320	R	0.00_s	Rubber Coat Insl-x	Wilbur & Williams Co.	13
Formula No. 330	R	7.24	Rubber Coat Insl-x	Wilbur & Williams Co.	13
G.E. No. 12840	P	0.00	Modified Phenolic	General Electric Co.	7
Glidden Cushioning Mat.	S	0.00	Miscellaneous	Glidden Co.	13
Glidden Inert Sealer No. 587	S	0.00	Miscellaneous	Glidden Co.	13
Glidden Inert Sealer No. 589	S	0.00	50% glycerol ester of rosin; 50% hydrocarbon	Glidden Co.	13
Glidden Inert Sealer No. 590	S	0.00	100% Para Coumarone Indene	Glidden Co.	13
Glidden Inert Sealer No. 591	S	0.00	50% glycerol ester of rosin; 50% Para Coumarone Indene	Glidden Co.	13
				Glidden Co.	13
Glidden Inert Sealer No. 592	S	0.00	100% glycerol ester of rosin	Glidden Co.	13

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Glidden Inert Sealer No. 598	S	0.00	100% glycerol ester of rosin	Glidden Co.	13
Glidden Inert Sealer No. 600	S	0.00	100% glycerol ester of rosin	Glidden Co.	13
Gray Glid Iron	S	0.00_s	Polyester	Glidden Co.	8
H-00	P	0.00_s	Polyester	Schundler	8
H-35	P	0.00_s	Polyester	Schundler	8
Hycar 1-10 DC-2202	R	0.00			11
Laminac No. 4116	A	0.00	Polyester/Styrene	American Cyanamid Co.	8
Laminac No. 4134	A	0.00	Polyester/Styrene	American Cyanamid Co.	8
Laminated Fiberglas	P	0.00	Polyester	Glass Fibers Inc.	8
Lustrex Lt. 373	P	0.00_s	Polystyrene	Monsanto Chem. Co.	10
Lustrex Clear	P	0.00_s	Polystyrene	Monsanto Chem. Co.	10
MX-172 Celanese	P	0.00	Polyester	Celanese Corp. of America	8
Melmac No. 1502	P	1.31	Melamine-formaldehyde-cellulose filled	American Cyanamid	7
Metaseal No. 19V5	S	0.04_s	Polyester	American Metaseal Corp.	8
Mylar Tape	P	0.00_s	Polyethylene/Terephthalate	Mystic Adhesive Prod.	8
Nylon No. 6501	P	0.00_s	Polyamide	E.I. du Pont de Nemours Co.	6
Permacel No. 30	P	0.14	Vinyl film electrical tape	Industrial Tape Corp.	12
Permatex No. 2	S	10.62	Gasket Sealing Compound	Permatex Co. Inc.	13
Phenolic Epoxy	P	0.00	Phenolic-Epoxy	U.S. Rubber	7
Polyplastic MC	P	0.01_s	Polyester	Polyplastic United Inc.	8
Preset-Plasmount No. 2	A	0.00_s	Miscellaneous	Girder Process	13
Presstite No. 155	R	0.21	Polyisobutylene/Asbestos	Presstite Engineering Co.	13
Presstite No. 155.6	A	0.26	Sealant	Presstite Engineering Co.	13
Presstite No. 218	A	1.70	Aerodynamic Smoothing Cmpd.	Presstite Engineering Co.	13
Presstite No. 261	A	0.03	Sealant	Presstite Engineering Co.	13
Presstite No. 261-6	A	0.13	Sealant	Presstite Engineering Co.	13
Presstite No. 271	A	0.20	Sealant	Presstite Engineering Co.	13
Presstite No. 144-41	S	0.13	Asphalt Rubber	Presstite Engineering Co.	13

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Resinox		0.06	Miscellaneous		13
Rock Island F-18FE	R	0.35	Synthetic Elastomer	Rock Island Arsenal	11
Rubber Comp. 325453	R	0.00	Synthetic Elastomer	Ohio Rubber Co.	11
Silastic D-250	R	0.09	Silicone Rubber	Dow Corning Corp.	11
Silicone Grease G	M	2.12	Soft silicone film	General Electric Co.	9
Silicone Grease H	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. 20044	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. 20046	M	0.00	Soft silicone film	General Electric Co.	9
Silicone Grease No. XC-4272	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-4282	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XC-5012	M	3.01	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. XCT-4043	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Grease No. 372-72-539	M	0.00	Soft silicone film	Dow Corning Corp.	9
Silicone Electro-lube-Pres-o-Valve	M	0.00	Soft silicone film	General Electric Co.	9
Thiokol-LP-2 with C5	R	0.35	Polysulfide Rubber	Thiokol Chemical Corp.	11
Tub-Kove Sealing Strip	S	0.00	Vinylite	Keller Products	12
Vinylite MA-28-4		0.00	Vinylite	Bakelite Corp.	12
Vinylite Pipe Marker		0.00	Polyvinyl Chloride		12
Z-2E-Hypalon	R	6.02		Rock Island Arsenal	11
Z-40-Silicone	R	0.00	Silicone Rubber	Rock Island Arsenal	11
Z-46E-Adiprene	R	0.00	Adiprene	Rock Island Arsenal	11
Z-47 Hycar 4021	R	1.09	Butyl Rubber	Rock Island Arsenal	11
		Tracer Composition R-45			
Pliobond No. 30	R	0.08	Synthetic Rubber	Goodyear Tire & Rubber Co.	11
		Tritonal			
E.C. No. 981	S	0.17	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1055	S	0.20	Synthetic Rubber	Minnesota Mining & Mfg. Co.	11
E.C. No. 1126	S	0.10	Oil Resistant Elastomer	Minnesota Mining & Mfg. Co.	11

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
E.C. No. 1202	S	0.00	Oil Soluble Elastomer	Minnesota Mining Mfg. & Co.	11
E.C. No. 1365	S	0.00	Butyl Base	Minnesota Mining Mfg. & Co.	11
Glidden Cushioning Material	S	0.00	Miscellaneous	Glidden Co.	13
Glidden Inert Sealer No. 587	S	0.00	Miscellaneous	Glidden Co.	13
Glidden Inert Sealer No. 589	S	0.00	50% hydrocarbon; 50% glycerol ester of rosin	Glidden Co.	13
Glidden Inert Sealer No. 590	S	0.00	100% Para-Coumarone Indene	Glidden Co.	13
Glidden Inert Sealer No. 591	S	0.00	50% glycerol ester of rosin; 50% Para-Coumarone Indene	Glidden Co.	13
Glidden Inert Sealer No. 592	S	0.00	100% glycerol ester of rosin	Glidden Co.	13
Glidden Inert Sealer No. 598	S	0.00	100% glycerol ester of rosin	Glidden Co.	13
Glidden Inert Sealer No. 600	S	0.00	100% glycerol ester of rosin	Glidden Co.	13
Gray Glid Iron	S	0.00 s	Polyester Resin	Glidden Co.	8
Panelyte Pc No. 41263	P	0.00 s	Acrylonitrile Copolymer	St. Regis Sales Corporation	11
Permacel No. 30	A	0.00	Vinylite	Industrial Tape Corp.	12
Permatex No. 2	S	10.70	Gasket sealant	Permatex Co. Inc.	13
Pliobond No. 30	R	0.95	Butadiene Acrylonitrile	Goodyear Tire & Rubber Co.	11
Presstite No. 155.6	A	0.05		Presstite Engineering Co.	13
Presstite No. 218	A	1.82	Aerodynamic Smoothing Cmpd.	Presstite Engineering Co.	13
Teflon	P	0.00	Polyethylene	E.I. du Pont de Nemours & Co., Inc.	4
Silicone Grease Form G	M	0.00	Silicone	General Electric Co.	9
Silicone Grease Form H	M	1.83	Silicone	General Electric Co.	9
Silicone Grease A-20044	M	0.00	Silicone	General Electric Co.	9
Silicone Grease A-20046	M	0.00	Silicone	General Electric Co.	9
Silicone Grease 372-72-539	M	0.00	Silicone	General Electric Co.	9
Silicone Grease XC-4272	M	1.91		Dow Corning Corp.	9
Silicone Grease XC-4282	M	0.07	Silicone	Dow Corning Corp.	9
Silicone XCT-4043	M	0.00	Silicone	Dow Corning Corp.	9

Material	Classification As to Use	Reactivity (gas evolution, ml)	Type Base	Manufacturer of Material	Section
Silicone Grease XC-5012	M	0.00	Silicone	Dow Corning Corp.	9
Silicone Electro Lube Pres-o-Valve	M	0.00	Silicone	General Electric Co.	5
S-60-Copolymer	P	0.00 s	Styrene/isobutylene	Enjay Co., Inc.	10
TVA	P	0.00 s	Cellulose Acetate	Monsanto Chem. Co.	2
VU-1310	P	0.00 s	Polyvinyl Chloride	Bakelite Corp.	12
Yellow Flare					
Epon 828	P	0.00	Epoxy	Shell Chemical Corp.	3
Zirconium Hydride					
Cycleweld C-14	P	0.00	Epoxy	Cycleweld Cement Products	3
Tetranitrocarbazole					
Cycleweld C-14	A	0.06	Epoxy	Cycleweld Cement Products	3
Pyrotechnic Composition FF101L					
S-50 copolymer	A	0.00	Polystyrene	Enjay Co., Inc.	10
Styron 666	A	0.00	Polystyrene	Dow Corning Corp.	10

Acoustic Cement-Adhesive-Armstrong Cork Co.

Oleoresinous Base–(Asbestos Fibers, Inert Clay/Naphtha)

Explosive/Propellant	Reactivity (gas evolution, ml.)	Reference (Picatinny Arsenal Report Number)	Section
Composition A	0.00	52-M2-110	13
Composition B	0.00	52-M2-110	
Composition C-3	1.86	52-M2-110	
Composition C-4	0.00	52-M2-110	
Dynamite	No Exp.	52-M2-110	
PETN	0.02_s	52-M2-110	
Pentolite 50/50	0.00	52-M2-110	
RDX	0.00	52-M2-110	
Tetrytol 75/25	2.22	52-M2-110	
TNT	0.00	52-M2-110	

Acid Proof Black Paint–Coating–The Glidden Co.
Type I–Spec. JAN-P-450 (U. S. A. 3-106F)

Explosive/Propellant	Reactivity (gas evolution, ml.)	Reference (Picatinny Arsenal Report Number)	Section
Composition A-3	0.00_s	56-M2-27	13
Composition B	1.19_s	56-M2-27	
Composition C-4	0.73_s	51-8-26	
Lead Azide	No. Exp.	53-M2-89	
M-20	No. Exp.	53-M2-89	
Nol-100	No. Exp.	53-M2-89	
RDX	0.25_s	53-M2-89	
Tetryl	1.63	53-M2-89	
TNT	0.02_s	56-M2-27	

The subscript s indicates that storage reports are available.

Explosive/Propellant	Reactivity (gas evolution, ml.)	Reference (Picatinny Arsenal Report Number)	Section
Acrylated Alkyd—Plastic—Aberdeen Proving Ground Polyester MF-881			
Amatol	4.25	56-M2-12	8
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.00	56-M2-12	
Acrylic-MF-875—Aberdeen Proving Ground Acrylate MF-875			
Amatol	0.03	56-M2-12	1
Black Powder	0.00	57-H1-321	
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.00	56-M2-12	
Acryloid-B-72—Adhesive—Rohm and Haas Polymethyl-Methacrylate—40% Solid in Toluene			
Black Powder A-5	0.38	56-M2-5	1
Composition B	0.00_s	52-M2-145	
M-9	5.06_s	53-M2-19	
Squib Mix	0.00_s	51-S-4	
Tetryl	0.00_s	51-H1-136470	
Allite—Plastic—Pittsburgh Plate Glass Co. Polyallyldiglycol Carbonate			
JPN	0.00_s	53-M2-4	13
MRP	0.00_s	53-M2-4	
T_2	0.08_s	53-M2-4	
T_8	0.00_s	53-M2-4	

Alvar–Adhesive–Shawinigan Products Co.
Polyvinyl Acetal Resin

Explosive/Propellant	Reactivity (gas evolution, ml.)	Reference (Picatinny Arsenal Report Number)	Section
Composition C-3	0.55	53-M2-46	12
H-6 (Navy Explosive)	0.03	53-M2-46	
MOX	0.00	53-M2-46	
Tetryl	0.04	53-M2-46	

Amberlac No. 292–Plastic–Rohm and Haas
Modified Polyester Resin

Explosive/Propellant	Reactivity (gas evolution, ml.)	Reference (Picatinny Arsenal Report Number)	Section
Black Powder A-5	0.00	56-M2-77	8
Composition B	0.00	56-M2-77	
Lead Azide	No Exp.	56-M2-77	
PBX	0.00	56-M2-8	
Primer Mix–Class I	No Exp.	56-M2-77	
Tetryl	0.50	56-M2-77	

Amberlite-PR No. 115–Adhesive–Rohm and Haas
Resorcinol–Formaldehyde Resin

Explosive/Propellant	Reactivity (gas evolution, ml.)	Reference (Picatinny Arsenal Report Number)	Section
HBX-6	0.00	56-M2-42	7
RDX	0.00	56-M2-42	

Araldite AN-111, CN-503–Adhesive–Ciba Co. Inc.
Epoxy Resin

Explosive/Propellant	Reactivity (gas evolution, ml.)					Reference (Picatinny Arsenal Report Number)	Section
Black Powder (CN-503)	0.00	(CN-101)	0.02			55-H1-1112, 51-H1-2419	3
Composition B (CN-503)	11+	(AN-111)	0.00_s	(F)	0.23	55-M2-41; 54-M2-32; 55-H1-1112	
M-2 (102) with 951	6.61_s					52-M2-84	
M-10 (CN-503)	0.00					55-H1-1112	
T-8 (101)	8.43					51-H1-2419	
T-19 (AN-100)	7.85	(CN-503)	0.00	(E-107)	0.13	56-M2-14, 54-H1-2100, 54-H1-2107, 54-H1-1740	

Armstrong (J-1140-B) (J-1140-D) (J-1140-E) Adhesives—Armstrong Cork Co.

Explosive/Propellant	J-1140-B (Phenol-Formaldehyde) Section 7	J-1140-D (Chlorinated Rubber) Section 11	J-1140-E (Cumar C-6 Base) Section 13	Reference (Picatinny Arsenal Report Number)
Composition A	0.00	0.00	0.00	52-M2-110
Composition B	0.27	0.00	0.00	52-M2-110
Composition C-3	1.15	1.10	0.12	52-M2-110
Composition C-4	0.20	0.00	0.02	52-M2-110
Dynamite	No Exp.	No Exp.	No Exp.	52-M2-110
PETN	0.00	0.00	0.00	52-M2-110
Pentolite 50/50	0.00	0.00	0.00	52-M2-110
RDX	0.00	0.00	0.00	52-M2-110
TNT	0.00	0.00	0.00	52-M2-110
Tetrytol 75/25	2.43	3.66	2.03	52-M2-110

Armstrong (N-111) (N-171) Adhesive—Armstrong Cork Co.

Explosive/Propellant	N-111 (Synthetic Rubber) Section 11	N-171 (Synthetic Rubber) Section 11	J-1162 Section 13	Reference (Picatinny Arsenal Report Number)
Black Powder A-1	0.06_s	0.00_s	—	53-M2-26
Black Powder A-5	0.33_s	—	—	54-M2-14
Composition B	2.42_s	0.77	—	53-M2-26
Fuze Powder	0.00	—	—	54-M2-14
M-1	0.00_s	0.00	—	53-M2-26
M-2	0.89_s	0.00_s		52-M2-84
Nitrated Yarn	0.00	—	—	54-M2-14
Tetryl	1.16_s	1.33_3	0.17	53-M2-26

Armstrong A-1—Adhesive—Armstrong Products Co.
Epoxy Type Resin

Explosive/Propellant	Reactivity	Report Number	Section
JPN	7.58_s	53-M2-4	3
MRP	8.10_s	53-M2-4	
T-2	6.89_s	53-M2-4	
T-8	7.96_s	53-M2-4	

A-4; A-6; A-3; C-4

Explosive/Propellant	Reactivity	Report Number
Composition B (A-6)	4.77 (with E); 5.53 (with A)	55-M2-53
Cyclotol (A-6; C-4)	3.67 (A-6); 10.56 (C-4)	56-M2-10; 55-M2-38
M-2 (A-3)	2.77_s	52-M2-84
RDX (A-4)	5.17	52-H1-632
Tetryl (A-6)	0.60	55-M2-33

Asphalt—Asbestos—Adhesive—Plymouth Industrial Corp.
Compensator Recoil—Mil-C-13212

Explosive/Propellant	Reactivity	Report Number	Section
T-28	5.57	56-H1-502	13

Barrier Material
P. A. 203

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.13	56-H1-1402	13

	Bakelite C-11 Styrene/Rubber Section 11	BM-6102 Phenolic Section 7	BM-6260 Phenolic Section 7	BM-13080 Phenolic Section 7	
Black Powder A-4	–	–	0.00	–	52-M2-48
Composition B	0.00_s	0.49	–	0.00	53-M2-21
M-2		2.83_s	–	–	52-M2-44
$KClO_3$-Primer Mix	–	–	0.00	–	52-M2-144
Photograph Flashlight Powder			1.64		53-M2-64
Tetryl	0.00_s	–	–	–	
TNT	–	–	–	0.04	52-M2-48

Bakelite BR-18795—Plastic—Bakelite Corp
Epoxy Resin

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder	0.00	53-H1-499	3
Composition A-3	0.00	53-M2-76	
Composition C-3	10.39, 8.62	53-H1-496	
Cyclotol 75/25	0.61	53-M2-76	
H-6 Navy Explosive	10.55, 10.78	53-H1-496	
MOX-2B	3.44, 2.06	53-H1-496	
RDX-Hystine	0.00	53-M2-76	
Tetryl	2.40	53-H1-499, 53-H1-496, 54-H1-2763	

Bakelite BRS-147-Plastic—Bakelite Corp.
Polyester Resin

Explosive/Propellant	Reactivity	Report Number	Section
Composition A-3	0.00	56-M2-24	8
Composition B	0.14	55-H1-2298	
Cyclotol 75/25	0.00*	56-M2-24	
HBX-6	0.53*	56-M2-73	

Ankoseal No. 436—Plastic—Nome Electrical Corp.
Polyvinyl Chloride

Explosive/Propellant	Reactivity	Report Number	Section
M-7	0.00*	135157	12

Bakelite BM-250—Plastic—Bakelite Corp.
Phenolic

Explosive/Propellant	Reactivity	Report Number	Section
NRL-Propellant	0.00	56-H1-1159	7

Bakelite DE-3422–Plastic–Bakelite Corp.

Polyethylene

Explosive/Propellant	Reactivity	Report Number	Section
JPN	0.20_s	53-M2-4	4
MRP	0.00_s	53-M2-4	
T_2	0.00_s	53-M2-4	
T_8	0.00_s	53-M2-4	

Bakelite QRS-136–Plastic–Bakelite Corp.

Polyester

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-1	0.17_s	53-M2-26, 52-M2-153	8
Composition B	0.00	53-M2-26	
M-1	0.00	53-M2-26	
M-2	0.00_s	52-M2-26	
Tetryl	0.23	54-Hi-2099	
TNT	0.00	53-M2-26	

Bakelite QRS-147–Plastic–Bakelite Corp.

Polyester/Styrene

Explosive/Propellant	Reactivity	Report Number	Section
$BaCrO_4/KClO_4/Zr\text{-}Ni$	0.00_s	52-M2-166	8
Composition B	0.00_s	52-M2-100	
OGK	0.00	53-M2-20	
RDX	0.00	52-M2-132	
Swiss Propellant	0.40_s	52-M2-174	
T_6	0.00	54-M2-46	
T_{26}	0.00_s	53-M2-20; 52-M2-49	
Tetryl	0.22_s	52-M2-132, 52-M2-100	
TNT	0.00_s	52-M2-166	

Explosive/Propellant	Reactivity	Report Number	Section
Bakelite RD-51-24-Plastic—Bakelite Corp.			
Modified Polystyrene			
Black Powder A-5	0.00	53-H1-499	10
T_2	0.00	52-H1-2066	
Bakelite BV-1600—Coating—Bakelite Corp.			
Phenol-Formaldehyde Baked Varnish			
C-4 Spec. 3-221 No. 2	0.00_s	51-8-26	7
Bakelite DYNH—Plastic—Bakelite Corp.			
Polyethylene			
Ammonium Perchlorate	0.00	54-M2-39	4
Bakelite Pc-Mk-73-2-250c-Spacers			
Phenolic			
Lead Azide	No Exp.	52-M2-172	7
Bakelite VAGH—Adhesive—Bakelite Corp.			
Vinyl Acrylic			
M-7	0.00_s	52-M2-150	12
T-6	0.00_s	52-M2-4	
Tetryl	0.00_s	51-8-5	
Bakelite VF-612—Coating—Bakelite Corp.			
Acid Proof Black Paint—Spec. AXS-1680 Type 2			
C-4	0.00	51-8-26	13

Explosive/Propellant	Reactivity	Report Number	Section
Bakelite VU-1310—Coating—Bakelite Corp.			
Polyvinyl Chloride Acetate			
T_2	0.00_s	51-8-6	12
Type O Propellant	0.00_s		
Bakelite VGNA-59679			
Polyvinyl Chloride Acetate			
Black Powder A-5	0.00_s	54-M2-7	12
Bakelite—30786 Vinylite			
Vinyl Acetate			
PBX	0.00_s	56-M2-29	12
PETN	0.00_s	56-M2-29	
Tetryl	0.00_s	56-M2-29	
Bakelite XV—1657—Coating			
Phenol—Formaldehyde			
C-4	0.00_s	51-8-26	7
Bakelite—BM-261—Plastic			
Phenolic			
Igniter Charge	0.00	56-M2-11	7
Lead Azide	No Exp	56-M2-11	
RDX	0.35	56-M2-11	
Bartalon—Adhesive—Plymouth Industrial Prod. Inc.			
Asphaltic			
Black Powder	0.00_s	56-M2-26	13
Tetryl	0.54_s	56-M2-26	
TNT	0.24_s	56-M2-26	

Explosive/Propellant	Reactivity	Report Number	Section
	Bondmaster No. M-373 Adhesive—Rubber and Asbestos Corp. Synthetic Rubber Base		
Black Powder	0.04_s	56-M2-80	11
	Bondmaster No. M-620—Adhesive—Rubber and Asbestos Corp. Formerly AB-2A-1—Plastic—Epoxy Resin		
Composition B	0.00	56-M2-54	3
	Bondmaster No. M-698—Plastic—Rubber and Asbestos Corp. Epoxy-Phenolic		
Composition B	0.00_s	56-M2-40	7
	Briggs Rubber No. 107—Briggs Rubber Butadiene Acrylonitrile		
M1	0.00_s	57-TM2-33	11
M9	0.00_s	57-TM2-33	
M-17	0.85_s	57-TM2-33	
	Buna-N—Rubber-O-Rings—Castle Rubber Co. Butadiene/Acrylonitrile		
OGK	1.10	56-M2-66	11
T-16	1.61	56-M2-41	
	Butyl Rubber No. 5N259 (32B-62) Ohio Rubber Co. Butyl GR-I		
Composition B	0.00_s	55-M2-20	11
Tetryl	0.00_s	55-M2-20	
TNT	0.00_s	55-M2-20	

Explosive/Propellant	Reactivity	Report Number	Section
Butvar B-76–Plastic–Monsanto Chem. Corp			
Polyvinylbutyraldehyde			
Cyclotol 75/25	0.00	55-M2-13	12
Casco Flexible Cement–Adhesive–The Borden Co.			
Miscellaneous			
Composition A	0.00	52-M2-110	13
Composition B	0.00	52-M2-110	
Composition C-3	0.11	52-M2-110	
Composition C-4	0.00	52-M2-110	
Dynamite	No Exp.	52-M2-110	
PETN	0.00	52-M2-110	
Pentolite 50/50	0.00	52-M2-110	
RDX	0.00	52-M2-110	
TNT	0.00	52-M2-110	
Tetrytol 75/25	3.39	52-M2-110	
Ca Plugs–Plastic–Protective Closure Co. Inc.			
Polyethylene			
Tetryl	0.00_s	52-M2-21	4
Celanese–MX-172–Plastic–Celanese Corp.			
Polyester			
Composition B	0.00	56-M2-49	8
TNT	0.00	56-M2-49	
No. 300 P. C. Cellophane–Plastic–E. I. duPont deNemours & Co., Inc.			
Regenerated Cellulose			
Black Powder A-5	0.19	53-M2-72	2
Primer Mix F. A. No. 70	No Exp.	53-M2-72	

Cement No. 4678—Adhesive—E. I. duPont de Nemours & Co., Inc.

Miscellaneous

Explosive/Propellant	Reactivity	Report Number	Section
HMX	0.00	57-HI-583	13
PBX	0.00	57-HI-583	

Cellophane-Plastic—E. I. duPont de Nemours & Co., Inc.

Regenerated Cellulose

Explosive/Propellant	Reactivity	Report Number	Section
M-8 Spec. MIL-50-11-151	0.00	53-M2-85	2
M-8 M-Sar-84	0.47	54-M2-49	

Cellulose Acetate—Plastic—B. F. Goodrich Chem. Co.

Cellulosic

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder	0.00	52-HI-4188	2
T-31	0.00	56-M2-46	

Cellulose Acetate/Dibutyl Phthalate—Plastic—Chemaco Corp.

Cellulosic

Explosive/Propellant	Reactivity	Report Number	Section
Double Base Propellant M-2	5.98	53-HI-2757	2
Haleite	1.24	53-HI-2757	
PETN	0.44	53-HI-2575	
RDX	0.22	53-HI-2757	
Single Base Propellant M-1	0.18	53-HI-2757	
T-9	1.53	53-HI-2757	

Cellulose Nitrate Film (Plastic) Selectronic Corp

Cellulosic

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder	0.00	52-M2-6	2
M-1	0.00 s	52-M2-6	
M-9	3.75	51-HI-136287	
M-10	0.22	54-HI-2110	
T-18	0.00 s	54-HI-2110	

Explosive/Propellant	Reactivity	Report Number	Section
Cerex Yellow—Plastic—Monsanto Chemical Co.			
Polystyrene			
RDX	0.00_s	52-M2-146	10
TNT	0.00_s	52-M2-146	
No. 825 Chemotex—Plastic—Entectic Welding Alloys Corp.			
Epoxy			
Composition B	10.21	53-M2-67	3
No. 823—Chematex—Plastic—Entectic Welding Alloys Corp.			
Epoxy			
Composition B	2.51	53-M2-67	3
Chlorinated Paraffin—Plastic—Aberdeen Proving Ground			
MF-877 Hydrocarbon—Chlorinated			
Amatol	0.26	56-M2-12	4
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.00	56-M2-12	
Clevelon—Plymouth Industrial Prod.			
Asphaltic			
Black Powder A-5	0.00_s	56-M2-26	13
Tetryl	0.10_s	56-M2-26	
TNT	0.12_s	56-M2-26	

Explosive/Propellant	Reactivity	Report Number	Section
	CMC—No. 346—Plastic—Chemaco Corp		
	Sodium—Carboxymethyl Cellulose		
JPN	0.00_s	53-M2-4	2
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.74_s	53-M2-4	
	Collins-RF No. 60 Rubber—Collins Packing Co.		
	Synthetic Rubber		
M-6	0.00_s	52-M2-45	11
	Conductoplast—Liquid Resin—Atlas Mineral Products		
	Cement Conductive		
T-6	5.70_s 0.66_s	53-M2-80; 51-8-36	13
	Coverlac—Orange—Coating—Spraylat Corp.		
	Polyvinyl Chloride		
RDX	0.00_s	57-TM2-35	12
TNT	0.06_s	57-TM2-35	
Tetryl	0.00_s	57-TM2-35	
	Corfoam No. 114—Plastic—Rezolin, Los Angeles		
	Phenolic Foam		
HBX-6	1.21	56-M2-63	7
M-10	1.69	55-M2-51	
T-18	0.00	55-M2-51	

Ciba No. 502–Plastic–Ciba Chem. Co.

Glass-Filled Epoxy

Explosive/Propellant	Reactivity	Report Number	Section
OIO	10.18	53-M2-90	3
Coumarone–Indene–Aberdeen Proving Ground MF-874			
Amatol	10.02	56-M2-12	13
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.00	56-M2-12	
Cycleweld C-14–Adhesive–Cycleweld Cement Products Epoxy Resin			
Baratol	3.12	53-M2-13	3
Barium Nitrate	0.00	53-M2-82	
Black Powder	0.00s	55-M2-55	
Composition A-3	0.48	56-M2-34	
Composition B	10.56, 10.49+	56-M2-34, 55-H1-1822	
FA-70 Primer Mix	No Exp.	56-H1-140	
Flash Powder Bullseye No. 2	7.74	52-H1-2023	
HBX-6	10.11	56-M2-4	
IMR-4879-Propellant	0.00	53-M2-99	
Incendiary Cmpd. IM-142	0.00	53-M2-99	
M-8	6.77	57-TM2-15	
M-9	5.28	57-TM2-15	
M-10	0.00s	56-M2-34	
Pentolite 50/50	8.58	53-M2-82	
Silicon	0.00	55-M2-55	
TNT	11+ 16 hrs. s	56-M2-34	
Tetranitrocarbazole	0.00	55-M2-55	
Tetryl	2.06s, 7.75	53-M2-99; 56-M2-34	
Zirconium Hydride	0.00	55-M2-55	

Explosive/Propellant	Reactivity	Report Number	Section
Cycopal-S-102-5—Coating—American Cyanamid			
Styrenated Alkyd			
Fuze Powder	0.00_s	53-M2-87	8
Lead Azide	No Exp.	52-H1-2065	
Primer Mix-M-20	No Exp.	52-H1-2065	
Primer Mix 70	No Exp.	52-M2-148	
Primer Mix 100	No Exp.	52-H1-2065	
Primer Mix NOL-130	No Exp.	52-H1-2065	
RDX	0.00	53-M2-89, 52-M1-489	
Tetryl	0.10, 0.58	53-M2-89, 52-H1-489	
Dampcoat Enamel-Coating—Wilbur and Williams Co.			
Rubberized Coating			
Amatol 60/40	10.11_s	51-8-1	11
TNT	0.00_s	51-8-1	
Dex-o-Tex—Rubber—Crossfield Products Corp.			
Neoprene Conductive Rubber			
Lead Azide	No Exp_s	56-M2-76	11
M-2	0.55_s	57-M2-1	
M-9	0.00_s	57-M2-1	
M-15	0.22_s	57-M2-1	
M-17	0.00_s	57-M2-1	
RDX	0.00_s	57-M2-1	
TNT	0.25_s	57-M2-1	
Diacetate Cloth—Bale 25			
Black Powder	0.00	57-H1-321	2
M-1	0.00	57-H1-321	
M-2	0.00	57-H1-321	
M-15	0.00	57-H1-321	

Explosive/Propellant	Reactivity	Report Number	Section
Dielecto Tubing—Plastic—Continental Diamond Fibre Co.			
Phenolic Laminate			
TNT	0.05	55-M2-46	7
Tetryl	0.00	55-M2-46	
Tetrytol	0.00	55-M2-46	
Dobeckman—Coating—Dobeckman Co.			
Regenerated Cellulose			
M-Sar-clear M-8	0.00	53-M2-134	2
M-Sar-L-86 M-8	0.00	53-M2-134	
H-50-M Sar-86 M-8	6.80	53-M2-134	
C-11 Copolymer—Plastic—Lionel Co. Inc.			
Polystyrene			
Composition B	0.00_s	52-M2-130	10
Tetryl	0.00_s	52-M2-130	
Dylene No. 100—Koppers Chem. Co.			
Polystyrene			
RDX	0.00	55-M2-50	10
Dispersite No. 1789—Rubber—U. S. Rubber Co.			
Reclaim Rubber			
Composition C-3	1.83_s	133744	11
Composition C-4	0.00_s	133744	
Dispersite No. 1822A—Rubber—U. S. Rubber Co.			
Butyl Rubber			
Composition C-3	1.80_s	133744	11
Composition C-4	0.00_s	133744	

Explosive/Propellant	Reactivity	Report Number	Section
Dylan-KPD-160–Plastic–Koppers Co. Inc.			
Polyethylene			
RDX	0.00	55-M2-50	4
TNT	0.00	56-M1-748	
Tetryl	0.00	56-H1-748	
Duralac–R-1900–P			
Ethyl Cellulose Lacquer			
Composition B	0.00_s	51-8-12	2
Dioxime No. 1 and No. 2–Rubber–DeBell and Richardson Inc.			
Butyl Rubber			
Composition B	0.00_s	52-M2-85	11
Lead Azide	0.00	52-M2-85	
Primer Mix-M-18	0.00	52-M2-85	
Tetryl	0.00_s	52-M2-85	
Dryply No. 81–Plastic–Flexfirm Products			
Glass Filled Reinforcing Material–Impregnated with Polyester Resin			
Composition B	0.00_s	55-H1-2120, 57-TM2-4	8
HBX-6	0.00_s		
Durite–HR-340–Plastic–The Borden Co.			
Phenolic–Spec. Mil-P-10420			
Lead Azide	No Exp.	53-M2-84	7-
Lead Styphnate	No Exp.	53-M2-84	
Nol-130-Primer Mix	No Exp.	53-M2-84	
PETN	0.09	53-M2-84	
Potassium Dinitrobenzo Furazan	No Exp.	53-M2-84	
RDX	1.06	53-M2-84	
Tetracene	No Exp.	53-M2-84	
Tetryl	0.00	53-M2-84	

Explosive/Propellant	Reactivity	Report Number	Section
	Durez No. 1905–Plastic–Durez Plastics Chem. Co. Inc.		
	Phenolic-Fabric Filled		
M-16	0.36_s	57-TM2-6	7
T-16	1.68	55-M2-6	
T-19	0.00_s	57-TM2-6	
	Durez No. 16621		
	Glass Filled Phenolic		
MOX-2B	0.00	56-M2-69	7
	Durez No. 11864		
	Class 8–Asbestos Phenolic		
Composition A-3	1.54	54-M2-23	7
	Durez No. 12041		
	Phenolic Resin		
M-2	1.62_s	52-M2-84	7
	Durez No. 13348		
M-2	8.48_s	52-M2-44	7
	Durez No. 14658		
M-2	8.45_s	52-M2-44	7
	Elvanol No. 70-05–Coating–E. I. duPont de Nemours & Co., Inc.		
	Polyvinyl Film		
Composition C-3	4.4[illegible], 2.38	55-M2-21	12

Epon No. 828—Plastic—Shell Chemical Corp.

Epoxy

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder	0.00	55-H1-1122	3
Composition B with D, Cl, Z	6.72 10.64 0.02_s 1.97	55-M2-5 56-M2-15	
Flash Composition	2.34	55-H1-620	
HBX-6 with A, Cl, Versamid 125	9.79 0.00_s 10.49	55-M2-49, 56-M2-70, 57-H1-772	
Lead Azide	No. Exp.	55-H1-620	
M-10 with A	0.00	55-H1-1122	
OIO with D	10.38	54-M2-26	
RDX with Z	0.00_s	56-H1-940	
TNT with A	4.60	56-H1-571	
Tetryl with Thiokol LP-3	1.86	54-M2-47	
T-131	4.49_s	55-H1-1118, 56-M2-23	
Yellow Flare	0.00	56-H1-1216	

Epon No. 6 Adhesive—Shell Chemic... ro.

Epoxy Resin

Explosive/Propellant	Reactivity	Report Number	Section
Composition B, Shavings	11+- 16 hrs 3.17	55-H1-2116, 55-H1-2372	3
T-19	7.56	54-H1-1740	
TNT	1.44	54-M2-45	
Tetryl	0.26	54-M2-45	
Tetrytol 65-35	3.43	54-M2-45	

Enrup—Plastic—United States Rubber

Clay Filled Rubber Phenolic

Explosive/Propellant	Reactivity	Report Number	Section
M2 with 257-F4	2.57_s	52-M2-44	7
M2 with 2530	2.92_s	52-M2-44	
M2 with 2532-F2	2.59_s	52-M2-44	
M2 with 2537-F7	4.43_s	52-M2-44	

Eranel Grease No. 900

Silicone

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.00_s	56-M2-22	9

Explosive/Propellant	Reactivity	Report Number	Section
	Exon No. 400 XR-61–Plastic–Firestone Plastics Co.		
	P. V. C.		
Fuze Powder	0.00_s	53-M2-7	12
	Ethocel–Lt51		
	Ethyl Cellulose		
M-8	Storage only	BZ-3-11	2
	Exon No. 402 A–Plastic–Firestone Plastics Co.		
	Unplasticized PVC		
Composition B	0.00	57-TM2-8; 55-H1-1106	12
M-2	1.09	57-TM2-8; 55-H1-1106	
M-8	0.00	57-TM2-8; 55-H1-1106	
	Ethyl Cellulose–Plastic–Federal Cartridge Co.		
	Cellulosic		
M-9 E/c 582-JS-2	0.92	55-M2-45	2
M-9 E/c 15570	0.70	55-M2-45	
Black powder E-12-S6	11+	53-H1-2757	
Haleite	1.28	53-H1-2757	
M-1	0.20	53-H1-2757	
M-2	4.20	53-H1-2757	
PETN	0.30	53-H1-2757	
RDX	0.25	53-H1-2757	
T-9	2.31	53-H1-2757	
Black Powder E-59-MS	11+	53-H1-2757	
Haleite	1.05	53-H1-2757	
M-1	0.22	53-H1-2757	
M-2	4.50	53-H1-2757	
PETN	0.29	53-H1-2757	
RDX	0.35	53-H1-2757	
T-9	1.64	53-H1-2757	
	Ethyl Cellulose No. 346–Plastic–Chemaco Corp.		
	Cellulosic		
JPN	1.67_s	53-M2-4	2
MRP	1.72_s	53-M2-4	
T-2	1.33_s	53-M2-4	
T-8	1.49_s	53-M2-4	

Explosive/Propellant	Reactivity	Report Number	Section
Furane X-2—Adhesive—Furane Plastics and Chemical Co.			
Furfural—Formaldehyde			
Cyclorol 75/25 with CM	0.00	56-H1-867	5
HMX with CM, PC	4.33 2.95	57-H1-19, 57-H1-32	
JPN	7.44_s	53-M2-4	
MRP	7.96_s	53-M2-4	
PBX	0.00	57-H1-20	
T-2	0.90_s	53-M2-4	
T-8	7.82_s	53-M2-4	
Fortran No. 404—Plastic—Thermoplastic Plastics Corp.			
Glass Fabric—Woven Type No. 3—Coated with PVC			
Lead Azide	No Exp.	54-M2-67	12
Mercury Fulminate	No Exp.	54-M2-67	
Fortisan—Plastic—Celanese Corp. of America			
Epoxy-Coated Regenerated Cellulose			
M-10	0.00	54-M2-54	2
T-18	7.44	54-M2-54	
Formvar "E"—Plastic—Shawinigan Resins Ltd.			
Polyvinyl Formvar			
JPN	0.00_s	53-M2-4	12
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
Flexseal No. 258—Adhesive—Vibradamp Corp.			
Polyvinyl Butyral			
Composition B	0.00	51-8-16	12
TNT	0.00	51-8-16	

Explosive/Propellant	Reactivity	Report Number	Section
Firestone No. S-FR172-3-Rubber–Firestone Tire and Rubber Co.			
M-1	0.00_s	56-H1-1629	11
M-9	1.10_s	56-H1-1629	
M-17	9.28_s	56-H1-1629	
Firestone No. S-FR172-2–Rubber			
M-1	0.00_s	56-H1-573	11
M-9	1.02_s	56-H1-573	
M-17	4.46_s		
Firestone No. S-FR172–1A–Rubber			
M-1	0.00	56-H1-573	11
M-9	0.14	56-H1-573	
M-17	3.79	56-H1-573	
Fiberglas–Laminated Plastics–Glass Fibers Inc. Polyester			
Composition B	0.00	54-H1-1734	8
T-131	0.00_s 4.49_s	54-H1-1734, 56-M2-25	
Tetryl	0.00	54-H1-1734	
Tetrytol	1.46	54-H1-1734	
TNT	0.00	54-H1-1734	
G. E. No. 12487–Plastic–General Electric Co. Rubber Modified Phenolic			
Composition B	1.42	53-M2-21	7
M-2	4.29, 5.50, 6.02, 5.98, 6.63, 5.13	51-H1-2271, 52-M2-44	
Pentolite 50/50	0.00		
GR-M-10-Rubber–E. I. duPont deNemours & Co., Inc. Neoprene			
Black Powder	0.00	52-M2-141	11
Tetryl	1.60	52-M2-141	

Explosive/Propellant	Reactivity	Report Number	Section
G. E. No. 12494—Plastic—General Electric Co.			
Phenolic—Rubber Modified			
Composition B	2.64	55-H1-396	7
G. E. No. 12809—Plastic—General Electric Co.			
Phenolic			
M-2	5.72		7
Hip-185a*—Plastic—Kopper Chemical Co.			
Polystyrene			
OIO	0.00_s	52-M2-138	10
GR-I-Rubber—Picatinny Arsenal			
Butyl or Government Rubber—160 Butylene			11
JPN	0.00_s	53-M2-4	
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
CR-M—Rubber—Picatinny Arsenal			
Neoprene			11
JPN	2.85_s	53-M2-4	
MRP	1.72_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
GR-S—Rubber—Picatinny Arsenal			
Butadiene/Styrene			11
JPN	0.00_s	53-M2-4	
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	

Explosive/Propellant	Reactivity	Report Number	Section
G. E. No. 12840–Plastic–General Electric Co.			7
Wood-Flour-Filled Phenolic			
Composition B	0.00	52-M2-48	
Pentolite 50/50	0.00	53-M2-17	
TNT	0.00	52-M2-48	
Geon No. 404–Plastic–B. F. Goodrich Chem. Co.			12
PVC Resin			
JPN	0.00 s	53-M2-4	
M-2	0.00	52-H1-874	
MRP	0.00 s	53-M2-4	
T-2	0.00 s	53-M2-4	
T-8	0.00 s	53-M2-4	
Geon No. 1911–Plastic–B. F. Goodrich Chem. Co.			12
PVC			
Black Powder A-5	11+	53-H1-2757	
Double Base Propellant-M-2	4.78	53-H1-2757	
Haleite	1.05	53-H1-2757	
PETN	0.26	53-H1-2757	
RDX	0.27	53-H1-1757	
Single Base Propellant M-1	0.18	53-H1-2757	
T-9	1.68	53-H1-2757	
Geon No. 2046–Plastic–B. F. Goodrich Chem. Co.			12
PVC			
Black Powder A-5	—	53-H1-2757	
Double Base Propellant (M-2)	3.81	53-H1-2757	
Haleite	1.10	53-H1-2757	
PETN	0.27	53-H1-2757	
RDX	0.23	53-H1-2757	
Single Base Propellant (M-1)	0.20	53-H1-2757	
T-9	2.29	53-H1-2757	

Explosive/Propellant	Reactivity	Report Number	Section
Geon No. 8700–Plastic–B. F. Goodrich Chem. Co.			
PVC			
Composition B	0.11_s	57-TM2-8, 55-H1-1106	12
M-2	0.39_s	57-TM2-8	
M-8	0.55_s	57-TM2-8	
Glaskyd No. 1901–Plastic–Olin Industries			
Fiberglas Reinforced Polyester			
Lead Azide	No Exp.	55-H1-620	8
RDX	0.00	55-H1-620	
Glidden Cushioning Material–No. 89A–Glidden Co.			
Rubbery White Solid			
Composition B	0.01_s	56-M2-36	13
Picratol	0.00_s	56-M2-36	
TNT	0.00_s	56-M2-36	
Tetryl	0.04_s	56-M2-36	
Tritonal	0.00_s	56-M2-36	
Glidden Inert Sealers Nos. 587 - 600–Glidden Co.			
Glyceral Esters of Rosin			
Composition B	0.00	56-M2-52, 55-H1-2121, 56-H1-864	13
Picratol	0.00	56-M2-52, 55-H1-2121, 56-H1-864	
Tritonal	0.00	56-M2-52, 55-H1-2121, 56-H1-864	
TNT	0.00	56-M2-52, 55-H1-2121, 56-H1-864	
Gray Glid Iron–Plastic–Glidden Co.			
Polyester			
Black Powder	0.00_s	57-TM2-23	8
Composition B	0.00_s	57-TM2-23	
TNT	0.00_s	57-TM2-23	
Tetryl	0.00_s	57-TM2-23	
Tritonal 80/20	$0.13, 0.00_s$	57-TM2-23	

Explosive/Propellant	Reactivity	Report Number	Section
	No. 1017–Glidpol–Adhesive–Glidden Co. Polyester Resin		
Composition B	0.00_s	56-M2-35	8
	Green Enamel–Coating–Cellulosic Spec. MIL-E-10687		
Lead Azide	No Exp.	53-M2-89	2
Primer Mix–M-20	No Exp.	53-M2-89	
Primer Mix–100	No Exp.	53-M2-99	
Primer Mix NOL-130	No Exp.	53-M2-89	
RDX	0.15	53-M2-89	
Tetryl	0.11		
	Green Lacquer–Coating–Cellulosic Spec MIL-1-10287		
Lead Azide	No Exp.	53-M2-89	2
Primer Mix-M-20	No Exp.	53-M2-89	
Primer Mix-100	No Exp.	53-M2-89	
Primer Mix NOL-130	No Exp.	53-M2-89	
RDX	0.00	53-M2-89	
Tetryl	0.63	53-M2-89	
	Gering X-6178-87-1–Plastic–Hercules Powder Cellulosic		
Black powder	0.00_s	51-8-13	2
M-7	0.63_s	51-8-13	
	H-00–Plastic–F. E. Schundler Co. Unfilled Polyester Resin		
Composition B	0.00_s	55-M2-54	8
TNT	0.00_s	55-M2-54	
Tetryl	0.00_s	55-M2-54	

Explosive/Propellant	Reactivity	Report Number	Section
H-35–Plastic–F. E. Schundler			
Filled Polyester Resin			
Composition B	0.00_s	55-M2-54	8
TNT	0.00_s	55-M2-54	
Tetryl	0.00_s	55-M2-54	
Hycar 76-248-Rubber–Goodyear Rubber Co.			
Butadiene/Acrylonitrile			
M-1	0.00	57-TM2-33	11
M-9	0.27	57-TM2-33	
M-17	0.94	57-TM2-33	
Hydraulic Oil–Mold Release			
MIL-O-5606			
Composition B	0.00	53-M2-27	13
OIO	0.24	53-M2-27	
PETN	0.00	53-M2-27	
Tetryl	0.00	53-M2-27	
Hypalon S-2–Plastic–E. I. duPont deNemours & Co., Inc.			
Chloro-Sulfonated Polyethylene			
Fuze Powder	0.00	53-M2-87	4
Lead Azide	No Exp.	53-M2-89	
Primer Mix M-20	No Exp.	53-M2-89	
Primer Mix 100	No Exp.	53-M2-89	
Primer Mix NOL-130	No Exp.	53-M2-89	
RDX	0.00	53-M2-89	
Tetryl	0.00	53-M2-89	
Hysol No. 6000–Adhesive–Houghton Laboratories			
Epoxy Resin			
JPN	0.00_s	53-M2-4	3
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	52-M2-4	

Explosive/Propellant	Reactivity	Report Number	Section
	Hysol No. 6020—Adhesive—Houghton Laboratories		
	Epoxy Resin		
HBX-6	10.33 2.03	56-M2-60	3
Pentolite 50/50	3.12	54-M2-48	
Swiss Propellant	10.17_s	52-M2-174	
Tetryl	10.29	53-M2-83	
	Isolite No. 2112 Perstop—Schenectady Varnish Co.		
	Polyester		
Composition B	0.30	54-H1-1447	8
Tetryl	0.00	54-H1-1447	
	Insulating Compound—150-DS-88—B. F. Goodrich Chemical Co.		
	Aluminum Silicate with Rubber Type Binder		
OIO	5.40 4.66_s 3.55	53-M2-45	13
	Johnson's Waxes, W-5015, 5016, 6118—S. C. Johnson and Sons		
Composition B	0.17, 0.07, 0.00	53-M2-71	13
	Kel-F-Plastic—M. W. Kellog and Co.		
	Polymonochlorotrifluoroethylene		
JPN	0.00_s	53-M2-4	4
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
	Kralastic BM-2146—Naugatuck Chemical		
	Acrylonitrile Styrene		
Composition B	0.00_s 0.65	54-M2-5, 53-F -1791	10
Tetryl Type J-2183-6	6.44_s	53-M2-56, 53- [illegible]1-823	

Laminac No. 4116—Adhesive—American Cyanamid

Polyester Resin

Explosive/Propellant	Reactivity	Report Number	Section
Cyclotol 75/25	0.00	53-M2-81	8
JPN	0.00_s	53-M2-4	
M7	0.00_s	52-M2-111, 52-M2-92	
MOX-2B	0.00	55-M2-12	
MRP	0.00_s	53-M2-4	
OIO	0.00_s	53-M2-90	
RDX	0.00	53-M2-81, 52-M2-131	
T-2	0.00_s	53-M2-4	
T-6	0.00	54-M2-46	
T-8	0.00_s	53-M2-4	
TNT	0.00_s	55-M2-31	
Tetryl	0.00	136521	

Laminac No. 4128

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.00_s	53-M2-59	8
Tetryl	0.00_s		

Laminac No. 4125

Explosive/Propellant	Reactivity	Report Number	Section
JPN	0.00_s	53-M2-4	8
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	

Laminac No. 4134

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-1	$0.13^{\pm}_{s}$	53-M2-26	8
Composition B	0.00_s	53-M2-26	
JPN	0.01_s	53-M2-4	
M-1	0.00_s	53-M2-26	
M-7	0.00_s	52-M2-111	
MRP	0.00_s	53-M2-4	
RDX	0.00	52-M2-131	

Explosive/Propellant	Reactivity	Report Number	Section
Laminac No. 4134–Adhesive–American Cyanamid Co.			
Polyester Resin			
Swiss Propellant	0.04	51-H1-2596	8
TNT 4134/80% 4116/20%	0.08_s	53-M2-26	
T-2	0.06_s	55-M2-31	
T-8	0.11_s		
Tetryl	0.08_s	53-M2-26	
Lining Compound–Coating–Dewy Almy Chem. Co.			
Spec PA-PD-128			
Composition B	0.48_s	52-M2-17	13
Lock Foam–Plastic–Polyurethane Foam–Nopco			
HBX-6 C-408P/64% C-408T/36%	1.91	56-M2-62	11
Lustrex Lt. 373–Plastic–Monsanto Chem. Co.			
Modified Polystyrene			
Composition B Lustrex LT-373	0.56_s	52-M2-128	10
JPN	0.64_s	53-M2-4	
M-9	0.00_s	52-M2-3	
MRP	0.40_s	53-M2-4	
RDX – Lustrex LT (Red)	0.00_s	52-M2-146	
TNT – Lustrex LT (Red)	0.00_s	52-M2-146	
T-2	3.05_s	53-M2-4	
T-8	0.41_s	53-M2-4	
Tetryl – Lustrex LT-373	0.00_s	52-M2-128	
3M–Sealants–E. C. No. 711–Minnesota Mining and Mfg. Co.			
Oil-Resistant Elastomer			
Composition B	0.00_s	55-M2-19	11
Composition C-3	0.05	55-M2-21	
TNT	0.00_s	55-M2-19	
Tetryl	0.46_s	55-M2-19	

3M-Sealant No. E. C. 776—Adhesive—Minnesota Mining and Mfg. Co.

Oil Resistant Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
PBX	0.87_s	56-M2-29	II
PETN	0.00_s	56-M2-29	
Tetryl	1.66_s	56-M2-29	

3M-Sealant No. E. C. 250—Minnesota Mining and Mfg. Co.

Synthetic Rubber-Paperbacked Tape

Composition C-3	1.00	55-M2-21	II

3M-Sealant No. E. C. 373—Rubber—Minnesota Mining and Mfg. Co.

Reclaim Rubber

Lead Azide	No Exp.	53-HI-1347	II
RDX	0.00	53-HI-1347	

3M Sealant No. E. C. 801—Sealant—Minnesota Mining and Mfg. Co.

Oil Resistant Elastomer

Composition A-3	0.41	53-M2-76	II
Cyclotol 75/25	0.76	53-M2-76	
RDX	0.00	53-M2-44	
RDX-Hystine	0.47	53-M2-76	
Tetryl	1.96	53-M2-44	

3M Sealant No. E. C. 826—Adhesive—Minnesota Mining and Mfg Co.

Buna-N-Synthetic Rubber-Oil Resistant Elastomer

Black Powder A-5	0.09_s	54-M2-56, 56-M2-80	II
Composition B	3.94	54-M2-56	
M-7	1.73	54-M2-56	
T-16	2.71_s	54-M2-56	
Tetryl	2.38_s	54-M2-56	

3M-Sealant and E. C. 833–Adhesive–Minnesota Mining and Mfg. Co.

Oil Soluble Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
PBX	0.41_s	56-M2-29	II
PETN	0.00_s	56-M2-29	
Tetryl	0.40_s	56-M2-29	

3M Sealant No. 847–Adhesive–Minnesota Mining and Mfg Co.

Oil Resistant Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-5	0.00	54-M2-56	II
Composition A-3	0.00	54-M2-56	
Composition B	0.00	53-M2-76	
Cyclotol 75/25	0.00	53-M2-76	
M-7	0.00	53-M2-76	
PBX	0.00_s	56-M2-29	
PETN	0.00_s	56-M2-29	
RDX-Hystine	0.00	56-M2-29	
T-16	0.00	54-M2-56	
Tetryl	1.86_s 0.32	54-M2-56, 55-H1-813	

3M Sealant No. 870–Adhesive–Minnesota Mining and Mfg. Co.

Neoprene–Oil Resistant Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
HBX-1	0.03	55-M2-15	II

3M Sealant No. 1022–Adhesive–Minnesota Mining and Mfg. Co.

Oil Resistant Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
RDX	0.00	53-M2-44	II
Tetryl	0.91	53-M2-44	

3M Sealant No. 1113-Sealant–Minnesota Mining and Mfg Co.

Oil Resistant Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.05_s	53-M2-96	II
M-10	0.00	54-H1-256	

Explosive/Propellant	Reactivity	Report Number	Section
3M Sealant No. 1055—Adhesive—Minnesota Mining and Mfg. Co.			
Oil Soluble Elastomer			
Composition B	0.39	54-H1-2106	II
Picratol	0.00	54-H1-2106	
TNT	0.13	54-H1-2106	
Tetryl	1.15	54-H1-2106	
Tritonal	0.20	54-H1-2106	
3M Sealant No. 1236—Adhesives—Minnesota Mining and Mfg. Co.			
Oil Resistant Elastomer			
Black Powder A-5	0.00	54-M2-56	II
Composition B	0.00	54-M2-56	
M-7	0.00	54-M2-56	
T-16	0.00	54-M2-56	
Tetryl	0.25	54-M2-56	
3M Sealant No. 1365—Sealant—Minnesota Mining and Mfg. Co.			
Butyl Rubber Base			
Composition B	0.06	54-M2-44	II
Picratol	0.00	54-M2-44	
TNT	0.02	54-M2-44	
Tetryl	0.00	54-M2-44	
Tritonal	0.00	54-M2-44	
3M Sealant No. 770—Adhesive—Minnesota Mining and Mfg. Co.			
Reclaim Rubber			
Black Powder A-1	0.00_s	137253	II
T-2	0.00_s	137253	
Lucite—Plastic—E. I. duPont deNemours & Co., Inc.			
Polymethyl Methacrylate			
Haleite	1.20	53-H1-2757	I
PETN	0.38	53-H1-2757	
RDX	0.31	53-H1-2757	
T-9	2.22	53-H1-2757	

3M Sealant No. 770—Sealant—Minnesota Mining and Mfg. Co.

Reclaim Rubber

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-5	0.00_5	137253	II
T-2	0.00_5	137253	

3M Sealant No. 981—Sealant—Minnesota Mining and Mfg. Co.

Oil Soluble Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.00	54-H1-2106	II
Picratol	0.00	54-H1-2106	
TNT	0.11	54-H1-2106	
Tetryl	0.04	54-H1-2106	
Tritonal	0.17	54-H1-2106	

3M Sealant No. 1126—Sealant—Minnesota Mining and Mfg. Co.

Oil Resistant Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.00	54-H1-2106	II
Picratol	0.00	54-H1-2106	
TNT	0.00	54-H1-2106	
Tetryl	0.00	54-H1-2106	
Tritonal	0.00	54-H1-2106	

3M Sealant No. 1202—Sealant—Minnesota Mining and Mfg. Co.

Oil Soluble Elastomer

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.00	54-H1-2106	II
Picratol	0.00	54-H1-2106	
TNT	0.00	54-H1-2106	
Tetryl	0.00	54-H1-2106	
Tritonal	0.00	54-H1-2106	

3M Sealant No. 1469—Adhesive—Minnesota Mining and Mfg. Co.

Modified Epoxy Resin

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.04_5	56-M2-54	II

Explosive/Propellant	Reactivity	Report Number	Section
Marrinol Metal Laminate–Plastic			
Aluminum Backed Blue PVC			
Lead Azide	No Exp.	55-H1-1828	12
Primer Mix NOL-100	No Exp.	55-H1-1828	
Primer Mix PA-100	No Exp.	55-H1-1828	
RDX	0.00	55-H1-1828	
Standard Primer Mix	No Exp.	55-H1-1828	
Tetryl	0.00	55-H1-1828	
Master's Metallic Compound–Harbinson and Co.			
RDX	10.36+	52-M2-154	13
Tetryl	10.34+	52-M2-154	
No. 1380–Metal Sealing Compound–Adhesive–E. I. duPont deNemours & Co., Inc.			
Polymer Solution			
T-6	0.00_s	52-M2-4	13
Metaseal No. 19V5–Plastic–American Metaseal Corp.			
Polyester			
Composition B	0.01_s	53-M2-8	8
TNT	0.04_s	53-M2-8	
Micarta–Plastic–Westinghouse Electric Co.			
Phenol-Formaldehyde			
Composition C-4	0.00	56-M2-47	7
No. 100–Monocork–Rubber–Armstrong Cork Co.			
JPN	0.00_s	53-M2-4	11
MRP	2.00_s	53-M2-4	
T-2	0.99_s	53-M2-4	
T-8	0.93_s	53-M2-4	

No. 500–Monocork–Rubber–Armstrong Cork Co.

Explosive/Propellant	Reactivity	Report Number	Section
JPN	2.48_s	53-M2-4	11
MRP	8.84_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.60_s	53-M2-4	

MR-25c–Plastic–Celanese Corp. of America
Polyester/Styrene

Explosive/Propellant	Reactivity	Report Number	Section
JPN	0.00_s	53-M2-4	8
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.09_s	53-M2-4	

Mylar Tape No. 7300–Plastic–E. I. duPont deNemours & Co., Inc.
(Polyester)–Polyethylene–Terephthalate

Explosive/Propellant	Reactivity	Report Number	Section
Black powder A-5	0.00 0.01_s	56-H1-572, 56-M2-26	8
M-2	1.36	56-H1-572	
M-6	0.00	56-H1-572	
M-10	0.00	56-H1-572	
M-17	0.00	56-H1-572	
NOL-130 Primer Mix	No Exp.	56-M2-67	
T-18	0.00	54-M2-54	
TNT	0.00_s	56-M2-26	
Tetryl	0.00	56-M2-26	

MX-172–Plastic–Celanese Corp.
Flexible Polyester/Styrene

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.00_s	56-M2-49	8
TNT	0.00_s	56-M2-49	

Explosive/Propellant	Reactivity	Report Number	Section
Nylon No. 1—Plastic—E. I. duPont deNemours & Co., Inc.			
Polyamide			
MRP	0.39	134829	6
T-2	0.24		
T-8	0.00		
Plastiktrim—Rubber—R. D. Werner Co. Inc.			
Reclaimed Rubber			
OGK	1.12_s	52-M2-43	11
T-2	0.07_s	52-M2-43	
T-6	0.64_s	52-M2-43	
T-8	0.68_s	52-M2-43	
T-9	0.00_s	52-M2-43	
Luting Compound No. 12128A—Thompson and Co.			
Vinyl Base			
T-6	0.00	52-M2-93	12
Polyvinyl Chloride Tubes—Irvington Varnish Co.			
P. V. C.			
T-6	0.54_s	53-M2-61	12
PV-845—Plastic—Specialty Coatings inc.			
Aluminum—Vinyl Pigmented Plastic			
Composition B	0.00_s	57-TM2-9	12
RDX	0.00_s	57-TM2-9	
TNT	0.00_s	57-TM2-9	
Tetryl	0.11_s	57-TM2-9	

Explosive/Propellant	Reactivity	Report Number	Section
Micro-Balloons—Plastic—Union Carbon and Carbide			
Phenol-Formaldehyde			
HBX-6	0.53_s	56-M2-61	7
Norfolk Varnish			
Black Powder A-5	0.00_s	52-M2-16	13
M-7	0.60_s	52-M2-16	
Nylon-FM-10001—Plastic—E. I. duPont deNemours & Co., Inc.			
Polyamide			
Composition B	0.00_s	52-M2-99	6
Match head Composition	No Exp.	55-H1-60	
RDX	0.00_s	52-M2-99	
TNT	0.00_s	52-M2-99	
Tetryl	0.00_s	52-M2-99	
Tetrytol	0.00_s	52-M2-99	
Nylon—FM3—Plastic—E. I. duPont deNemours & Co., Inc.			
Polyamide			
JPN	1.55_s	53-M2-4	6
MRP	1.08_s	53-M2-4	
T-2	0.69_s	53-M2-4	
T-β	0.46_s	53-M2-4	
Nylon No. 6501—Plastic—E. I. duPont			
Polyamide			
HMX	0.53	56-M2-51, 55-H1-1117	6
RDX	0.56	56-M2-51,	
TNT	0.00_s	56-M2-51	
O Rings—Rubber—Castle Rubber Co.			
Butadiene/Acrylonitrile			
OGK	1.10	56-M2-31	11
T-16	2.36_s 1.61_s	56-M2-31, 56-M2-41	

Explosive/Propellant	Reactivity	Report Number		Section
OKUN–Adhesive– A. L. Okun Company				
Organic Filler–Cold Solder				
Black Powder A-5	0.00	55-M2-10		13
"Orox" V–Plastic–Onyx Oils and Resins Inc.				
Molding Resin				
M-9	0.00	52-M2-133		13
Paraplex–P-13–Adhesive–Rohm and Haas				
Polyester				
Composition C-2/RDX	0.00_s	53-M2-60	P-43 - 85% P-13 15% Mixture	8
Composition C-3/RDX	0.00_s	53-M2-60		
Composition C-4/RDX	0.00_s	53-M2-60		
JPN	0.00_s	53-M2-4		
MRP	0.00_s	53-M2-4		
OIO P-13 25% P-43 75%	0.00_s	53-M2-90		
RDX	0.00_s	53-M2-60	P-43 P-13 85/15 mix.	
T-2	0.00_s	53-M2-4		
T-8	0.00_s	53-M2-4		
Paraplex-P-43–Adhesive–Rohm and Haas				
Polyester				
Composition B	0.00_s	52-M2-60		8
Composition C-3	0.00_s	52-M2-60		
JPN	1.61_s	53-M2-4		
MRP	0.00_s	53-M2-4		
PETN	0.00_s	52-M2-60		
Pentolite 50/50	0.00_s	52-M2-60		
T-2	0.00_s	53-M2-4		
T-8	0.00_s	53-M2-4		

Explosive/Propellant	Reactivity	Report Number	Section
Palmer No. 752—Plastic—Palmer Products Co.			
Phenolic			
PETN	0.00	55-M2-32	7
Pan Glaze—Mold Release—Dow Corning Corp.			
Silicone Film			
Tetrytol 65/35	1.41_s	53-M2-15	9
Panelyte Pc No. 41263—Plastic—St. Regis Sales Corp.			
Acrylonitrile Copolymer			
Composition B/RDX	0.00_s	52-M2-121	11
HBX	0.09_s	52-M2-121	
Lead Azide	No Exp.$_s$	52-M2-121	
Pentolite 50/50	0.00_s	52-M2-121	
Picratol 52/48	0.02_s	52-M2-121	
Tetryl	0.00_s	52-M2-121	
Tritonal 80/20	0.00_s	52-M2-121	
Penacolite G-1215A—Plastic—Koppers Co. Inc.			
Phenol-Formaldehyde			
JPN	0.00_s	52-M2-4	7
MRP	0.00_s	52-M2-4	
T-2	0.00_s	52-M2-4	
T-8	0.00_s	52-M2-4	
Permacel No. 30—Plastic—Industrial Tape Corp.			
Vinyl Film Electrical Tape			
Amatol	5.83	56-M2-13	12
TNT	0.14	56-M2-13	
Tritonal	6.00	56-M2-13	

Explosive/Propellant	Reactivity		Report Number	Section
	Permatex No. 2–Sealant–Permatex Co. Inc.			
	Gasket Sealant			
Composition B	10.45	16 hrs.	55-M2-18	13
OGK	0.94_s		52-M2-43	
T-2	0.00_s		52-M2-43	
T-6	0.00_s		52-M2-43	
T-8	0.00_s		52-M2-43	
T-9	0.00_s		52-M2-43	
TNT	10.62	16 hrs.	55-M2-18	
Tritonal 80/20	10.70	16 hrs.	55-M2-18	
	Pettman Cement–PO-DA-26-017-ORD-1331–Lastings Prod. Co.			
OGK	5.26_s		52-M2-43	13
T-2	4.14^{+}_{s}		52-M2-43	
T-6	5.47_s^{+}		52-M2-43	
T-8	8.55_s^{+}		52-M2-43	
T-9	0.00_s		52-M2-43	
	Plaskon No. 442–Plastic–Libbey Owens Ford Glass Co.			
	Alkyd			
Composition C-2/RDX	0.00_s		53-M2-57	8
Composition C-3/RDX	0.00_s		53-M2-57	
Composition C-4/RDX	0.00_s		53-M2-57	
MOX-2B	0.00		53-H1-1436	
RDX	0.00		53-M2-57	
	Plasmount–Pre-set No. 2–Adhesive–Girder Process			
Composition B	0.00_s		52-M2-47	13
Tetryl	0.00_s		52-M2-47	
TNT	0.00_s		52-M2-47	

Explosive/Propellant	Reactivity	Report Number	Section
Phenol-Formaldehyde No. 2611-P-Catalin Corp.			
Phenolic			
JPN	0.00_s	53-M2-4	7
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
Phenol-Formaldehyde Foam—Plastic—Bakelite Corp.			
Phenolic			
Composition B	0.85_s	52-M2-127	7
Phenol-Formaldehyde Varnish AXS-1680			
Phenolic			
Black Powder	0.00_s	51-8-20	7
Composition C-4	0.00	51-8-26	
Lead Azide	0.00	51-8-3	
PETN	0.00	52-M2-151	
Resinox No. 5797—Plastic—Monsanto Chem. Corp			
Phenolic			
Photoflash Powder	0.29	52-M2-115	7
Styrene/Acrylonitrile			
Acrylic			
MRP	0.00	134829	1
T-2	0.00	134829	
T-8	0.00	134829	
Vinyl/Acrylic—VAGH/Acryloid B-72			
Squib Mix	0.00	51-8-4	12

Explosives/Propellant	Reactivity	Report Number	Section
Plastic Cement VPX-27—Adhesive—Victory Plastics Co.			
Composition B	0.00	56-H1-1635	13
Tetryl	0.00	56-H1-1635	
Plaskon No. 951—Plastic—Allied Chem. and Dye Corp.			
Polyester			
MOX-2B	0.00	55-M2-53	8
RDX	0.00	55-M2-53	
Plexiglas-Plastic—Rohm and Haas			
Polymethyl-Methacrylate			
Composition C-4	0.00	51-8-35	1
Polystyrene—Plastic			
Straight Polystyrene			
M-9	0.00_s	52-M2-173	10
T-6	0.05	52-M2-102	
Polystyrene—Plastic			
Modified Polystyrene			
Composition B	0.00_s	53-M2-22	10
Composition C-4	0.00_s	52-M2-22	
Igniter Mix K-29	0.00_s	52-M2-143	
Iron Oxide	0.00	56-M2-93	
Lead Peroxide	0.00	53-M2-93	
Tetryl	0.00	53-M2-22	
Polystyrene Sealer—Solution—Monsanto Chem. Co.			
M-9	0.00	52-M2-173	10

Explosive/Propellant	Reactivity	Report Number	Section
Plexene "M"—Plastic—Rohm and Haas			
Styrene/Acrylonitrile			
JPN	0.00_s	53-M2-4	10
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
Pliobond No. 20—Rubber—Goodyear Tire and Rubber Co.			
Phenol-Formaldehyde/Syn. Rubber			
Black Powder A-5	0.05	53-H1-877	11
Composition B	3.19	53-H1-877	
M-1	1.25	53-H1-877	
PETN	0.05	55-M2-29	
T-2	2.18	52-M2-139	
Tetryl	2.94	53-H1-877	
Pliobond No. 30—Rubber—Goodyear Tire and Rubber Co.			
Phenol-Formaldehyde/Syn. Rubber			
Igniter Cmp. K-29	4.78_s	56-M2-20	11
Incendiary Mix IM-68	0.08_s	56-M2-20	
Incendiary Mix IM-136	0.29_s	54-H1-432, 56-M2-20	
Incendiary Mix IM-142	0.00_s	56-M2-20	
MOX-2B	0.27_s	54-H1-432, 56-M2-20	
RDX	3.22_s	56-M2-20	
Tetryl	2.40	56-M2-20	
Tracer Cmp. R-45	0.08_s	56-M2-20	
Tritonal 80/20	0.95	54-M2-15	
SW-11452-25-Pyrotech.	0.00_s	52-M2-155	
Pliofilm—Rubber—Goodyear Tire and Rubber Co.			
Rubber HCl-Film			
M-8	0.00	53-M2-134	11

Explosive/Propellant	Reactivity	Report Number		Section
GP-75–Plio-Tuf–Plastic–Goodyear Tire and Rubber Co.				
Styrene/Butadiene				
M9	0.00	54-M2-65		10
Hot Dip Ethyl Cellulose No. 215–Plastic				
Black Powder	0.00_s	56-M2-75		2
Cyclotol 75/25	0.50_s	56-M2-75		
M-8	1.95_s	56-M2-75		
M-10	0.09_s	56-M2-75		
Polyamide Hot Dip No. 220				
Polyamide				
Black Powder	0.00_s	56-M2-75		6
Cyclotol 75/25	0.67_s	56-M2-75		
M-8	4.22_s	56-M2-75		
M-10	0.00_s	56-M2-75		
Hot Dip No. 222 E. I. duPont deNemours & Co., Inc.				
Cellulose Acetate Butyrate				
Black Powder	0.00_s	56-M2-75		2
Cyclotol 75/25	0.00_s	56-M2-75		
M-8	0.00_s	56-M2-75		
M-10	0.00_s	56-M2-75		
Polyethylene–Plastics				
Polymerized Ethylene				
Black Powder A-1	0.00	53-M2-18	Barrett Binder Corp.	4
K-29 Igniter Mix	No Exp.	51-8-17		
T-2	0.00_s	52-M2-14		
T-6	0.00	53-H1-502		
Tetryl with sponge rubber	0.00	52-M2-73	Debell and R[illegible]hardson	

Explosive/Propellant	Reactivity	Report Number	Section
Presstite No. 106—Rubber—Presstite Engineering Co.			
Polysulfide Rubber			
M-2	0.81_s	52-M2-84	11
M-7	0.85_s	52-M2-171	
M-9	0.08_s	52-M2-173	
Presstite No. 144.4—Rubber—Presstite Engineering Co.			
Asphalt Rubber Resin			
Composition B	0.43	54-M2-17	13
Picratol	0.00	54-M2-17	
TNT	0.13	54-M2-17	
Tetryl	0.97	54-M2-17	
Tritonal	0.19	54-M2-17	
Presstite No. 155—Rubber—Presstite Engineering Co.			
Polyisobutylene/Asbestos			
Aluminum Flake	0.09	56-M2-81, 56-H1-236	13
Atomized Aluminum Pwd.	0.00	56-M2-81	
HBX-6	0.79	56-H1-236	
Potassium Perchlorate	0.01	56-M2-81	
TNT	0.21	56-M2-81	
Presstite No. 155.6			
Composition B	0.00	56-M2-33	13
Picratol	0.00	56-M2-33	
TNT	0.26	56-M2-33	
Tetryl	0.00	56-M2-33	
Tritonal	0.05	56-M2-33	
Polyethylene Film—Plastic—Emhart Co.			
T-18	0.00_s	54-M2-35	4

Presstite No. 218—Plastic—Presstite Engineering Co.

Aerodynamic Smoothing Compound

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-5	0.00	54-M2-20	13
Composition B	2.31	54-M2-6	
HBX-6	4.98	56-M2-72	
M-7	8.82	54-M2-20	
Picratol	0.42	54-M2-6	
T-6	6.49	54-M2-20	
TNT	1.70	54-M2-6	
Tetryl	0.18	54-M2-6	
Tritonal	1.82	54-M2-6	

Presstite No. 261

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.19	53-M2-12	13
M-6	0 00	53-M2-12	
M-7	0.00	53-M2-12	
RDX	0.25	53-M2-12	
TNT	0.03	53-M2-12	
Tetryl	0.38	53-M2-12	

Presstite No. 261-6

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.32	53-M2-12	13
M-6	0.00	53-M2-12	
M-7	0.04	53-M2-12	
RDX	0.56	53-M2-12	
TNT	0.13	53-M2-12	
Tetryl	0.48	53-M2-12	

*Pliofilm—Plastic—B.F. Goodrich

Rubber HCl film

Explosive/Propellant	Reactivity	Report Number	Section
M-8	0.00_s	53-M2-134	11

Presstite No. 271

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.00	53-M2-12	13
M-6	0.00	53-M2-12	
M-7	0.00	53-M2-12	
RDX	0.00	53-M2-12	
TNT	0.00	53-M2-12	
Tetryl	1.47	53-M2-12	

EP–601–Pro-Seal–Rubber–Coast Proseal Mfg. Co.

Polysulfide Rubber

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	2.46_s	56-M2-30	11

Prufcoat–Coating–Prufcoat Inc.

PVC

Explosive/Propellant	Reactivity	Report Number	Section
Composition C-4	0.00_s	56-M2-50	12
RDX	0.00_s	56-M2-50	

Purple Lacquer–Coating–Picatinny Arsenal

JAN-L-296

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-5	0.11_s	52-M2-117	2
M-7	0.00_s	52-M2-117	
Tetryl	0.00	56-HI-1564	
Tetrytol 75/25	5.38	56-HI-1564	

Red Enamel–Coating–American Cyanamid

Spec–MIL–E–10687

Explosive/Propellant	Reactivity	Report Number	Section
Lead Azide	No Exp.	53-M2-89	2
Primer Mix-100	No Exp.	53-M2-89	
Primer Mix-M-20	No Exp.	53-M2-89	
Primer Mix NOL-130	No Exp.	53-M2-89	
RDX	0.00	53-M2-89	
Tetryl	0.02	53-M2-89	

Explosive/Propellant		Reactivity	Report Number		Section
Red Lacquer–Coating–American Cyanamid					
Spec. MIL-L-10287					
Lead Azide		No Exp.	53-M2-89		2
Primer Mix-100		No Exp.	53-M2-89		
Primer Mix M-20		No Exp.	53-M2-89		
Primer Mix NOL-130		No Exp.	53-M2-89		
RDX		0.00	53-M2-89		
Tetryl		0.24	53-M2-89		
Royal Cement–Sealant–United States Rubber					
No. 6159					
T-6		0.36 $_s$	51-8-36		13
Tetryl		0.00	51-H1-1573		
Rubber Compositions					
M-6	5420-15	0.00 $_s$	52-M2-45	Quaker Rubber Co.	11
M-6	5420-60	0.00 $_s$	52-M2-45	Quaker Rubber Co.	
M-6	5420-45	0.00 $_s$	52-M2-45	Quaker Rubber Co.	
M-6	SX-1883	0.00 $_s$	52-M2-45	Acushnet Rubber Co.	
M-6	SX-1884	0.00 $_s$	52-M2-45	Acushnet Rubber Co.	
M-6	PS-10-13N	0.00 $_s$	52-M2-45	Parker Appliance Co.	
Rubber Composition 325453–Ohio Rubber Co.					
GR-S					
Composition B		0.00 $_s$	56-M2-68		11
RDX		0.00 $_s$	56-M2-68		
TNT		0.17 $_s$	56-M2-68		
Tetryl		0.00 $_s$	56-M2-68		
RD-51-24–Plastic–Bakelite Corp.					
Polystyrene					
Black Powder		0.00	52-H1-2066		10
T-2		0.00	52-H1-2066		

Rubber Composition—Firestone Tire & Rubber Co.

Explosive/Propellant		Reactivity	Report Number		Section
M-1	Uncured	0.00_s	56-M2-38	Firestone Tire & Rubber Co.	11
M-1	Cured	0.00_s	56-M2-38	Firestone Tire & Rubber Co.	
M-1	W-4930	0.00	52-M2-112	Raybestos-Manhattan Inc.	
M-2	Nat. Rub. Cmpd.	0.00	54-H1-1183	Raybestos-Manhattan Inc.	
M-6	W-4930	0.00	52-M2-112	Raybestos-Manhattan Inc.	
M-6	RF60	0.00_s	52-M2-45	Collins Packing Co.	
Composition B	5N259	0.00	55-M2-20	Collins Packing Co.	
TNT	5N259	0.00		Collins Packing Co.	
Tetryl	5N259	0.00		Collins Packing Co.	
T-16	No. 7 stoppers	0.02_s	52-M2-23	Picatinny Arsenal storeroom	
T-6	XP-203	0.00_s	56-M2-59	Picatinny Arsenal	
T-6	XP-206	0.00_s	56-M2-59	Picatinny Arsenal	
OIO	XP-203	0.00_s	56-M2-59	Picatinny Arsenal	
OGK	XP-218	0.94_s	56-M2-59	Picatinny Arsenal	
Composition B	I-18FE	0.14	54-H1-775	Rock Island Arsenal	
TNT	I-18FE	0.00	54-H1-775	Rock Island Arsenal	
Tetryl	I-18FE	0.39	54-H1-775	Rock Island Arsenal	
Composition B	Z-40 Silicone	0.00	56-M2-58	Rock Island Arsenal	
TNT	Z-40 Silicone	0.00	56-M2-58	Rock Island Arsenal	
Tetryl	Z-40 Silicone	0.00	56-M2-58	Rock Island Arsenal	
Composition B	Z-46E Adiprene	0.00	56-M2-58	Rock Island Arsenal	11
Tetryl	Z-46E Adiprene	0.54	56-M2-58	Rock Island Arsenal	
Composition B	Z-2E Hypalon	0.00	56-M2-58	Rock Island Arsenal	
TNT	Z-2E Hypalon	0.02	56-M2-58	Rock Island Arsenal	
Composition B	Z-47-Hycar 4021	1.01	56-M2-58	Rock Island Arsenal	
Tetryl	Z-47-Hycar 4021	0.46	56-M2-58	Rock Island Arsenal	
Composition B	I-10DC-Hycar 2202	0.00	56-M2-58	Rock Island Arsenal	
TNT	I-10DC-Hycar 2202	1.09	56-M2-58	Rock Island Arsenal	
Tetryl	I-10DC-Hycar 2202	0.00	56-M2-58	Rock Island Arsenal	

Explosive/Propellant		Reactivity		Report Number	Section
Selectron No. 5003–Plastic–Pittsburgh Plate Glass Co.					
Polyester resin					
Composition B (No. 5081)		0.00		54-M2-24	8
JPN		0.04_s	0.26_s	53-M2-4	
MRP		0.91_s	1.37_s	53-M2-4	
T-2		0.00_s	0.40_s	53-M2-4	
T-8		0.20_s	0.93_s	53-M2-4	
T-16		0.56_s		52-M2-49•	
Shell No. 422–Plastic–Shell Chemical Corp.					
Experimental (Epon) Epoxy Resin					
M-6		0.00_s		55-M2-44	3
M-10		0.00_s		55-M2-44	
Shellac/Bronze–Coating					
T-6		7.64		51-8-36	13
Shellmar–Adhesive–Shellmar Products Corp.					
Cellulosic					
M-8	971-R	0.00_s		53-M2-134	2
M-8	1037-B	0.00_s		53-M2-134	
Silastic No. 150 & No. 180–Rubber–Dow Corning Corp					
Silicone Polymer					
JPN		0.00_s		53-M2-4	11
MRP		0.00_s		53-M2-4	
T-2		0.00_s		53-M2-4	
T-8		0.00_s		53-M2-4	

Explosive/Propellant	Reactivity	Report Number	Section
Silastic No. D-250–Rubber–Dow Corning Corp.			
Silicone Rubber			
Composition B	0.00	56-H1-213	11
TNT	0.00	56-H1-213	
Silastic–80–24–480 and 50–24–480–Rubber–Dow Corning Corp.			
Silicone Rubber			
M-1	0.00_s	57-TM2-33	11
M-9	0.00_s	57-TM2-33	
M-17	0.00_s	57-TM2-33	
Silica Gel			
T-16	2.76	53-H1-1350	13
Silicone Grease Form H–Mold Release–General Electric			
Silicone film			
Black Powder A-5	0.00	55-M2-43	9
Composition A-3	0.77	55-M2-43	
Composition B	0.00	55-M2-43	
Composition C-4	0.00	55-M2-43	
Picratol	0.00	55-M2-43	
RDX	0.00	55-M2-43	
TNT	0.00	55-M2-43	
Tetryl	0.00	55-M2-43	
Tritonal	0.00	55-M2-43	
Styron No. 700–Plastic–Dow Chem. Co.			
Polystyrene			
Composition B	0.00	54-M2-28	10
Tetryl	0.00	54-M2-28	

Silicone Grease No. G—Mold Release—General Electric Co.

Silicone film

Explosive/Propellant	Reactivity			Report Number	Section
Black Powder A-5	0.00			55-M2-43	9
Composition A-3	0.00			55-M2-43	
Composition B	1.21			55-M2-43	
Composition C-4	0.04			55-M2-43	
Pentolite 50/50	4.22			55-M2-43	
Picratol	0.51			55-M2-43	
RDX	0.17			55-M2-43	
TNT	2.12			55-M2-43	
Tetryl	0.60			55-M2-43	
Tritonal	1.83			55-M2-43	

Silicone Greases—A20044—A20046—372-72-539

Explosive/Propellant	Reactivity			Report Number	Section
Black Powder A-5	0.00			55-M2-43	9
Composition A-3	0.00			55-M2-43	
Composition B	0.00			55-M2-43	
Composition C-4	0.00			55-M2-43	
Pentolite 50/50	0.00	0.29	0.09	55-M2-43	
Picratol	0.00			55-M2-43	
RDX	0.00			55-M2-43	
TNT	0.00			55-M2-43	
Tetryl	0.00			55-M2-43	
Tritonal	0.00			55-M2-43	

Silicone Greases—XC-4272, 4282, XCT-4043, XC-5012

Explosive/Propellant	Reactivity			Report Number	Section
Black Powder A-5	0.00			55-M2-43	9
Composition A-3	0.00			55-M2-43	
Composition B	0.00			55-M2-43	
Composition C-4	0.00	0.05		55-M2-43	
Pentolite 50/50	0.07	0.60	0.05	55-M2-43	
Picratol	0.00			55-M2-43	
RDX	0.00			55-M2-43	
TNT	0.00			55-M2-43	
Tetryl	0.00	4.24		55-M2-43	
Tritonal	1.91	0.07	0.06	55-M2-43	

Silk Grade E—Selectronic Corp.

Organic Compound

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-5	0.00_s	52-M2-6	6
M-1	0.00_s	52-M2-6	

S-50 Polymer—Plastic—Enjay Co.

Styrene/Isobutylene

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder A-5	0.00_s	53-M2-5	10
JPN	0.00_s	53-M2-4	
Lead Azide	No Exp.	53-M2-89	
M-7	0.00_s	53-M2-5	
M-20	No Exp.	53-M2-89	
MRP	0.07_s	53-M2-4	
Primer Mix-NOL-130	No Exp.	53-M2-89	
Primer Mix-100	No Exp.	53-M2-89	
Pyrotech. Cmp. FF 101L with aluminum	0.00_s	52-M2-155	
RDX	0.00	53-M2-89	
Squib Mix-M1A1	No Exp.	53-M2-5	
SW-11452-25 with Aluminum	0.00_s	52-M2-155	
T-2	0.00_s	53-M2-4	
T-6	0.00_s	52-M2-4	
T-8	0.00	53-M2-4	
Tetryl	0.00	53-M2-89	

S-60 Polymer—Plastic—Enjay Co.

Styrene/Isobutylene

Explosive/Propellant	Reactivity	Report Number	Section
T-2	0.00_s	51-8-6	10
Type O-propellant	0.00_s	51-8-6	

Stop Cock Grease—Mold Release—Dow Corning

Silicone film

Explosive/Propellant	Reactivity	Report Number	Section
M-1	0.00	136522	9
M-6	0.00	136522	

Styrenated Alkyd–Plastic–Aberdeen Proving Ground

Polyester

Explosive/Propellant	Reactivity	Report Number	Section
Amatol	5.85	56-M2-12	8
M-7	0.00	56-M2-12	
M-15	0.03	56-M2-12	
Tetryl	4.19	56-M2-12	

Sulfur No. 1 & No. 2–Rubber–Debell & Richardson Inc.

Butyl Rubber

Explosive/Propellant	Reactivity	Report Number	Section
Composition B	0.60_s	52-M2-85	11
Lead Azide	0.00_s	52-M2-85	
M-18	0.00_s	52-M2-85	
Tetryl	0.03_s 0.00	52-M2-85	

Styron No. 666–Plastic–Dow Chem. Co.

Polystyrene–Black rod

Explosive/Propellant	Reactivity	Report Number	Section
JPN	0.00_s	53-M2-4	10
MRP	0.00_s	53-M2-4	
Pyrotech. Cmpd.	0.00_s	53-M2-95	
T-2	0.00_s	53-M2-4	
T-6	0.56	54-M2-12	
T-8	0.00_s	53-M2-4	

Synvar Rubber–Synvar Corp.

Rubber Phenolic

Explosive/Propellant	Reactivity	Report Number	Section
M-2	3.39_s 5.13	52-M2-44	7

Synvarite No. PNL-12-H

Explosive/Propellant	Reactivity	Report Number	Section
T-28	0.54_s	57-TM2-29	7

Explosive/Propellant	Reactivity	Report Number	Section
Teflon–Plastic–E.I. du Pont de Nemours & Co., Inc.			
Polytetrafluoroethylene			
JPN	0.00_s	53-M2-4	4
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
Temflex–Plastic–Irving Varnish & Insulator Co.			
PVC			
Composition Smoke No. 259	0.00	54-M2-64	12
Charge Detonator No. 260	0.00	54-M2-64	
Tenite II 265 MS–Coating–Tennessee Eastman Co.			
Cellulose Acetate Butyrate			
M-7	0.00_s	52-M2-140	2
(LP-3) Thiokol–Adhesive–Thiokol Corp.			
Polysulfide Rubber			
Composition B	1.43	52-M2-29	11
RDX	0.27	52-M2-29	
TNT	0.35	52-M2-29; 52-M2-28	
Tetryl	1.86 2.49 2.09	54-M2-47; 52-M2-29	
(LP-2) Thiokol–Adhesive–Thiokol Corp.			
Polysulfide Rubber			
Black Powder A-5	0.00	52-M2-149	11
Composition A-3	0.00_s	55-M2-57	
M-1	0.00_s	55-M2-57	3
M-8	0.00	55-M2-57	
M-9	0.00_s	55-M2-57	
Tetryl	1.48	52-M2-149	

Explosive/Propellant	Reactivity	Report Number	Section
Tenite II 203-A-S2-P—Eastman Kodak			
Cellulose Acetate Butyrate			
Black Powder	1.70	53-H1-2757	2
Haleite	1.11	53-H1-2757	
M-1	0.21	53-H1-813	
M-2	4.48	51-H1-136889	
PETN	0.37	51-H1-136883	
RDX	0.25	51-H1-136883	
T-9	1.64	51-H1-136883	
Tenite II 270-A-S2-F—Eastman Kodak			
Cellulose Acetate Butyrate			
Black Powder	11+	53-H1-2757	2
Haleite	1.14	53-H1-2757	
M-1	0.28	53-H1-813	
M-2	4.64	51-H1-136889	
PETN	0.32	51-H1-136883	
RDX	0.28	51-H1-136883	
T-9	1.43	51-H1-136883	
TVA-P			
Cellulose Acetate			
T-2	0.00_s	51-8-6	2
Type O propellant	0.00_s	51-8-6	
Thiokol—1605 AH—Adhesive—Thiokol Corp.			
Polysulfide Rubber			
JPN	0.00_s	53-M2-4	11
MRP	0.24_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	

Thiokol–1620 AH–Adhesive–Thiokol Corp.

Polysulfide Rubber

Explosive/Propellant	Reactivity	Report Number	Section
JPN	0.34_s	53-M2-4	II
MRP	0.47_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.13_s	53-M2-4	

Thiokol–3000 FA–Adhesive–Thiokol Corp.

Polysulfide Rubber

Explosive/Propellant	Reactivity	Report Number	Section
JPN	0.50_s	53-M2-4	II
MRP	1.54_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.18_s	53-M2-4	

Thiokol–3000 PR-1–Adhesive–Thiokol Corp.

Polysulfide Rubber

Explosive/Propellant	Reactivity	Report Number	Section
JPN	[illegible]	53-M2-4	II
MRP	0.00_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.38_s	53-M2-4	

Thiokol–3000 ST–Adhesive–Thiokol Corp.

Polysulfide Rubber

Explosive/Propellant	Reactivity	Report Number	Section
JPN	0.00_s	53-M2-4	II
MRP	0.67_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	

Explosive/Propellant	Reactivity	Report Number	Section
Thiokol–3600 ST–Adhesive–Thiokol Corp.			
Polysulfide Rubber			
JPN	0.00_s	53-M2-4	11
MRP	0.25_s	53-M2-4	
T-2	0.00_s	53-M2-4	
T-8	0.00_s	53-M2-4	
Titanox TG–Coating–Titanium Alloys Mfg. Co.			
Inorganic Pigment			
Composition C-3	0.02	53-M2-46	13
Navy Explosive H-6	0.00	53-M2-46	
MOX-2B	0.00	53-M2-46	
Tetryl	0.00	53-M2-46	
Tremco–Sealcat–Tremco Mfg. Co.			
Polysulfide			
PBX	0.14	55-M2-8	11
PETN	0.05	55-M2-8	
Tetryl	1.06	55-M2-8	
Triacetate Cloth			
Black Powder	-0.00	57-H1-321	2
M-1	0.00	57-H1-321	
M-2	0.00	57-H1-321	
M-15	0.00	57-H1-321	
Tub–Kove–Adhesive–Keller Products Inc.			
Vinyl Sealing Strip			
Composition B	0.00	53-M2-86	12
TNT	0.00	53-M2-86	
Tetryl	0.41	53-M2-86	

Explosive/Propellant	Reactivity	Report Number	Section
Turbotherm No. 105–Firestone Tire & Rubber Co.			
Electrical Insulating Material			
Composition B	0.00	52-M2-27	11
Tygofilm No. TR-216-Blue–Coating–Liberty Products Co.			
Paint			
Composition C-4	0.00	56-M2-48	13
Valpon No. 182-C-7–Coating–Liberty Powder Co.			
Enamel			
Composition C-4	0.50	56-M2-48	13
Varglas–Rubber			
Silicone Tubing			
Composition B	0.00		
Pentolite 50/50	0.00	56-H1-197S; 57-TM2-19	11
Vibraglas No. 9594–Plastic–Glass Cushioning Engineering Co.			
Phenolic–glass laminate			
T-19	1.86	55-M2-4	7
Vibrin No. 115A–Plastic–Naugatuck Chem.			
Polyester Resin			
T-61 Primer Mix	No Exp.	53-H1-1190	8
Viscose Rayon Cloth G-14			
Black Powder	0.00	57-H1-321	2
M-1	1.98	57-H1-321	
M-2	3.82	57-H1-321	
M-15	0.00	57-H1-321	

Explosive/Propellant	Reactivity	Report Number	Section
Vistanex—Plastic—Standard Oil Co.			
Polyisobutylene			
Fuze Powder	0.00	53-M2-87	11
XA-4000 Adhesive—Dow Corning Corp.			
Silicone			
Composition B	0.00	55-H1-395	11
Tetryl	0.00	55-H1-395	
Vinyl Butyral—MF-891—Aberdeen Proving Ground			
Amatol	1.32	56-M2-12	12
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.00	56-M2-12	
Vinyl Chloride Acetate—MF-871—Aberdeen Proving Ground			
Amatol	2.26	56-M2-12	12
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.00	56-M2-12	
Vinyl Chloride Acetate—MF-872—Aberdeen Proving Ground			
Amatol	1.15	56-M2-12	12
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.00	56-M2-12	
Vinyl Toluene Alkyd—MF-883—Aberdeen Proving Ground			
Amatol	4.14	56-M2-12	8
M-7	0.00	56-M2-12	
M-15	0.00	56-M2-12	
Tetryl	0.19	56-M2-12	

Explosive/Propellant	Reactivity	Report Number		Section
Vinylite–MA-28-4				
Black powder	0.00	51-H1-2424		12
TNT	0.00	51-H1-2424		
Tetryl	0.00	51-H1-2424		
VGGB–Vinylite 19409				
Black powder	0.00	53-H1-874		12
Wash Primer No. X2676-B Spec. 15328				
Black Powder	0.15	56-H1-726; 57-TM2-5		13
M-1	0.00_s	56-H1-726; 57-TM2-5		
M-16	0.00	56-H1-726; 57-TM2-5		
M-17	0.00	56-H1-726; 57-TM2-5		
World Bestos–Adhesive–World Bestos Co. Phenolic/Acrylonitrile				
Composition A-3	0.00	53-M2-69		7
Composition C-3	1.25	53-M2-69		
Tetryl	0.32	53-M2-69		
XA-47 Resin–Plastic–Minneapolis Honeywell Corp.				
Composition A-3	0.11	53-M2-76	pyrolidine catalyst	
Cyclotal 75/25	2.77	53-M2-76	pyrolidine catalyst	
RDX-Hystine	6.39	53-M2-76	pyrolidine catalyst	
Zamak V–Lionel Co. Inc. 98% Zinc				
Tetryl	0.00_s	52-M2-130		13

Zarlock No. 965 –Plastic–Presstite Engineering Co.

Explosive/Propellant		Reactivity		Report Number	Section
Black Powder A-5		0.00		54-M2-55	13
Composition B		0.00		54-M2-55	
M-9		0.00		54-M2-55	
Tetryl		0.00		54-M2-55	

XC-269 Adhesive

Silicone

Black Powder A-5		0.00		53-H1-1790	11

Zinc Chromate Primer–Coating

Inorganic Pigment

M-7	Spec. JAN-P-735	0.00 s		54-M2-27	13
OGK	Spec. JAN-P-735	0.13 s		54-M2-27	
T-6	Spec. JAN-P-735	0.00 s		54-M2-27	
T-16	Spec. JAN-P-735	0.00 s		54-M2-27	
T-19	Spec. JAN-P-735	0.36 s		54-M2-27	
Composition B	MIL-P-6889	0.01		53-M2-[illegible]3	
OGK	MIL-P-6889	0.00 s		54-M2-27	
M-7	MIL-P-6889	0.00 s		54-M2-27	
T-6	MIL-P-6889	0.19 s		54-M2-27	
T-16	MIL-P-6889	0.77 s		54-M2-27	
T-19	MIL-P-6889	0.00 s		54-M2-27	
OGK	MIL-P-6889	0.35 s	with Reducer No. 213	54-M2-27	
M-7		0.00 s		54-M2-27	
T-6		0.00 s		54-M2-27	
T-16		0.71 s		54-M2-27	
T-19		0.00 s		54-M2-27	

Zapon No. 2360–Coating–Brevolite Co.

Cellulose Nitrate

Lead Azide		0.00		51-8-3	2
PETN		0.00		51-8-3	

Zapon No. 2360–Coating–Brevolite Co.
Cellulost Nitrate

Explosive/Propellant	Reactivity	Report Number	Section
RDX	0.00	53-M2-44	2
Squib Mix	1.80	51-8-19	
Tetryl	0.00	53-M2-44	

XC-271 Adhesive–Dow Corning Corp.
Silicone

Explosive/Propellant	Reactivity	Report Number	Section
Black Powder	0.00	55-H1-2083	11
Tetryl	0.00	55-H1-2083	

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